



**UP KIBO X L** 

Type designation UP Kibo X L

Type test reference no DHV GS-01-2883-24

Holder of certification UP International GmbH Manufacturer UP International GmbH

**Classification** B

Winch towing Yes

Number of seats min / max 1/1

**Accelerator** Yes

Trimmers No

BEHAVIOUR AT MIN WEIGHT IN FLIGHT (105KG)

**Test pilots** 



IN FLIGHT (130KG)



No release

No release

Rising behaviour Smooth, easy and constant rising

Inflation/take-off Α

Α

Special take off technique required No

-----Smooth, easy and constant rising

No

Α

**Landing** 

Special landing technique required No

Speeds in straight flight

Trim speed more than 30 km/h Yes

Speed range using the controls larger than 10 km/h Yes

Minimum speed Less than 25 km/h

Yes

Less than 25 km/h

Control movement

Symmetric control pressure Increasing

Symmetric control travel Greater than 65 cm

Greater than 65 cm

Pitch stability exiting accelerated flight

Dive forward angle on exit Dive forward less than 30°

Collapse occurs No

Dive forward less than 30°

No

Pitch stability operating controls during accelerated flight

Α

Collapse occurs No

Nο

Roll stability and damping

Oscillations Reducing

Reducing

Tendency to return to straight flight Spontaneous exit

Behaviour exiting a fully developed spiral dive

Initial response of glider (first 180°) Immediate reduction of rate of turn

Tendency to return to straight flight Spontaneous exit (g force decreasing, rate of

turn decreasing) Turn angle to recover normal flight Less than 720°, spontaneous recovery

Immediate reduction of rate of turn Spontaneous exit (g force decreasing, rate of turn decreasing)

Less than 720°, spontaneous recovery

Symmetric front collapse

Rocking back less than 45° Spontaneous in 3 s to 5 s Dive forward 0° to 30° Keeping course

**Entry** Rocking back less than 45° **Recovery** Spontaneous in less than 3 s Dive forward angle on exit Dive forward 0° to 30° Change of course Keeping course

Cascade occurs	; No	No
Folding lines used		no
_		
Unaccelerated collapse (at least 50 % chord)	A	В
Entry	Rocking back less than 45°	Rocking back less than 45°
	Spontaneous in less than 3 s	Spontaneous in 3 s to 5 s
Dive forward angle on exi	•	Dive forward 0° to 30°
Change of course		Keeping course
Cascade occurs		No
Folding lines used		no
. Stanig inics asset		
Accelerated collapse (at least 50 % chord)	A	В
L	· Rocking back less than 45°	Rocking back less than 45°
	-	
	Spontaneous in less than 3 s	Spontaneous in 3 s to 5 s
Dive forward angle on exit		Dive forward 0° to 30°
Change of course		Entering a turn of less than 90°
Cascade occurs		No
Folding lines used	Ino	no
Exiting deep stall (parachutal stall)	ia.	A
Exiting deep stan (paracilutar stan)	<u> </u>	
Deep stall achieved	l Yes	Yes
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exi	Dive forward 0° to 30°	Dive forward 0° to 30°
Change of course	Changing course less than 45°	Changing course less than 45°
Cascade occurs	s No	No
Access to the second second	1_	r_
High angle of attack recovery	¦A	¦A
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Cascade occurs	s No	No
	T. Communication of the Commun	T. Comments of the Comments of
Recovery from a developed full stall	A	A
Recovery from a developed full stall  Dive forward angle on exit	<u> </u>	A Dive forward 0° to 30°
Dive forward angle on exit	<u> </u>	<u> </u>
Dive forward angle on exit	: Dive forward 0° to 30° a No collapse	Dive forward 0° to 30°
Dive forward angle on exit Collapse Cascade occurs (other than collapses)	: Dive forward 0° to 30° a No collapse	Dive forward 0° to 30° No collapse
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back	Dive forward 0° to 30° No collapse No	Dive forward 0° to 30° No collapse No
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back	Dive forward 0° to 30° No collapse No Less than 45°	Dive forward 0° to 30° No collapse No Less than 45°
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back	Dive forward 0° to 30° No collapse No Less than 45°	Dive forward 0° to 30° No collapse No Less than 45°
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back Line tension	Dive forward 0° to 30° No collapse No Less than 45° Most lines tight	Dive forward 0° to 30° No collapse No Less than 45° Most lines tight
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back Line tension	Dive forward 0° to 30° No collapse No Less than 45° Most lines tight Less than 90°	Dive forward 0° to 30° No collapse No Less than 45° Most lines tight
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back Line tension Small asymmetric collapse Change of course until re-inflation Maximum dive forward or roll angle	Dive forward 0° to 30° No collapse No Less than 45° Most lines tight Less than 90°	Dive forward 0° to 30° No collapse No Less than 45° Most lines tight  A Less than 90°
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back Line tension Small asymmetric collapse Change of course until re-inflation Maximum dive forward or roll angle	Dive forward 0° to 30° No collapse No Less than 45° Most lines tight  A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation	Dive forward 0° to 30° No collapse No Less than 45° Most lines tight  A Less than 90° Dive or roll angle 15° to 45°
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back Line tension  Small asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course	Dive forward 0° to 30° No collapse No Less than 45° Most lines tight  A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation	Dive forward 0° to 30°  No collapse  No Less than 45°  Most lines tight  A  Less than 90°  Dive or roll angle 15° to 45°  Spontaneous re-inflation
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back Line tension  Small asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course	Dive forward 0° to 30° No collapse No Less than 45° Most lines tight  A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360°	Dive forward 0° to 30°  No collapse  No Less than 45°  Most lines tight  A  Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360°
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back Line tension  Small asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course	Dive forward 0° to 30° No collapse No Less than 45° Most lines tight  A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation)	Dive forward 0° to 30°  No collapse  No Less than 45°  Most lines tight  A  Less than 90°  Dive or roll angle 15° to 45°  Spontaneous re-inflation Less than 360°  No (or only a small number of collapsed
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back Line tension  Small asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs	Dive forward 0° to 30° No collapse No Less than 45° Most lines tight  A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation)	Dive forward 0° to 30°  No collapse  No Less than 45°  Most lines tight  A  Less than 90°  Dive or roll angle 15° to 45°  Spontaneous re-inflation Less than 360°  No (or only a small number of collapsed cells with a spontaneous re inflation)
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back Line tension  Small asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs	Dive forward 0° to 30° No collapse No Less than 45° Most lines tight  A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No	Dive forward 0° to 30°  No collapse  No Less than 45°  Most lines tight  A  Less than 90°  Dive or roll angle 15° to 45°  Spontaneous re-inflation Less than 360°  No (or only a small number of collapsed cells with a spontaneous re inflation)  No
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back Line tension  Small asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs  Twist occurs Cascade occurs	Dive forward 0° to 30° No collapse No Less than 45° Most lines tight  A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No	Dive forward 0° to 30°  No collapse  No Less than 45° Most lines tight  A  Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360°  No (or only a small number of collapsed cells with a spontaneous re inflation)  No No no
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back Line tension  Small asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Twist occurs	Dive forward 0° to 30° No collapse No Less than 45° Most lines tight  A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No	Dive forward 0° to 30°  No collapse  No Less than 45° Most lines tight  A  Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360°  No (or only a small number of collapsed cells with a spontaneous re inflation)  No No
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back Line tension  Small asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs  Twist occurs Cascade occurs	Dive forward 0° to 30° No collapse No Less than 45° Most lines tight  A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No	Dive forward 0° to 30°  No collapse  No Less than 45° Most lines tight  A  Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360°  No (or only a small number of collapsed cells with a spontaneous re inflation)  No No no
Dive forward angle on exit Collapses Cascade occurs (other than collapses) Rocking back Line tension  Small asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Twist occurs Cascade occurs Folding lines used	Dive forward 0° to 30° No collapse No Less than 45° Most lines tight  A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No	Dive forward 0° to 30°  No collapse  No Less than 45° Most lines tight  A  Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360°  No (or only a small number of collapsed cells with a spontaneous re inflation)  No No no
Dive forward angle on exit Collapses Cascade occurs (other than collapses) Rocking back Line tension  Small asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs  Twist occurs Cascade occurs Folding lines used  Large asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle	Dive forward 0° to 30° No collapse No Less than 45° Most lines tight  A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No	Dive forward 0° to 30°  No collapse  No Less than 45° Most lines tight  A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No no  B 90° to 180°
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Dive forward angle on exit Collapses Cascade occurs (other than collapses) Rocking back Line tension  Small asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Cascade occurs Folding lines used Large asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs	Dive forward 0° to 30° No collapse No Less than 45° Most lines tight  A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No Dive or roll angle 15° to 45° Spontaneous re-inflation Dive or roll angle 15° to 45° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No No	Dive forward 0° to 30°  No collapse  No Less than 45° Most lines tight  A  Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360°  No (or only a small number of collapsed cells with a spontaneous re inflation)  No No no  B  90° to 180° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re-inflation) Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No

Small asymmetric collapse accelerated Change of course until re-inflation Less than 90° Less than 90°

Maximum dive forward or roll angle Dive or roll angle 15° to 45° Dive or roll angle 15° to 45° Re-inflation behaviour Spontaneous re-inflation Spontaneous re-inflation Total change of course Less than 360° Less than 360°

Collapse on the opposite side occurs No (or only a small number of collapsed cells

No (or only a small number of collapsed cells with a spontaneous re inflation) with a spontaneous re inflation)

Twist occurs No No Cascade occurs No No Folding lines used no no

Large asymmetric collapse accelerated	В	В
Change of course until re-inflation	90° to 180°	90° to 180°
Maximum dive forward or roll angle	Dive or roll angle 15° to 45°	Dive or roll angle 15° to 45°
Re-inflation behaviour	Spontaneous re-inflation	Spontaneous re-inflation
Total change of course	Less than 360°	Less than 360°
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous re inflation)	No (or only a small number of collapse cells with a spontaneous re inflation)
Twist occurs	No	No
Cascade occurs	No	No
Folding lines used	no	no
Directional control with a maintained asymmetric collapse	А	А
Able to keep course	Yes	Yes
180° turn away from the collapsed side possible in		Yes
Amount of control range between turn and stall or		More than 50 % of the symmetric control travel
Trim speed spin tendency	A	A
Spin occurs	No	No
Low speed spin tendency	¦ <b>A</b>	A
Spin occurs	No	No
Recovery from a developed spin	B	A
Spin rotation angle after release	Stone chinning in 000 to 1000	Stone eninning in lose than 000
Cascade occurs		Stops spinning in less than 90° No
cuscuuc occurs		110
B-line stall	A	A
Change of course before release	Changing course less than 45°	Changing course less than 45°
_	Remains stable with straight span	Remains stable with straight span
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit	Dive forward 0° to 30°	Dive forward 0° to 30°
Cascade occurs	No	No
Big ears	A	A
Entry procedure	Standard technique	Dedicated controls
Behaviour during big ears		Stable flight
	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit	•	Dive forward 0° to 30°
Big ears in accelerated flight	<b>A</b>	A
Fntry procedure	Standard technique	Dedicated controls
Behaviour during big ears		Stable flight
	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit	•	Dive forward 0° to 30°
Behaviour immediately after releasing the accelerator while maintaining big ears	Stable flight	Stable flight
Alternative means of directional control	<b>A</b>	A
180° turn achievable in 20 s	Voc	Yes
180° turn achievable in 20 s Stall or spin occurs		ves No
	INU	INL

Any other flight procedure and/or configuration described in the user's manual

**UP KIBO X M** 

Inflation/take-off

Type designation UP Kibo X M

Type test reference no DHV GS-01-2884-24

Holder of certification UP International GmbH

Manufacturer UP International GmbH

**Classification** B

Winch towing Yes

Number of seats min / max 1/1

**Accelerator** Yes

Test pilots

Trimmers No

BEHAVIOUR AT MIN WEIGHT IN FLIGHT (90KG)

**BEHAVIOUR AT MAX WEIGHT IN FLIGHT (115KG)** 



Josef Bauer

Rising behaviour Smooth, easy and constant rising

No release

Α

Smooth, easy and constant rising

Sebastian Mackrodt

Nο

No release

Special landing technique required No

Speeds in straight flight A

Trim speed more than 30 km/h Yes Yes Yes

Speed range using the controls larger than 10 Yes km/h

Special take off technique required No

Minimum speed Less than 25 km/h Less than 25 km/h

Control movement

Symmetric control pressure Increasing

Symmetric control travel Greater than 60 cm Greater than 65 cm

Pitch stability exiting accelerated flight

**Dive forward angle on exit** Dive forward less than 30° Dive forward less than 30°

> Collapse occurs No Nο

Pitch stability operating controls during

Collapse occurs No

Roll stability and damping Α

**Oscillations** Reducing Reducing

Stability in gentle spirals

Tendency to return to straight flight Spontaneous exit Spontaneous exit

Behaviour exiting a fully developed spiral dive A

Initial response of glider (first 180°) Immediate reduction of rate of turn

Tendency to return to straight flight Spontaneous exit (g force decreasing, rate of turn decreasing)

Turn angle to recover normal flight Less than 720°, spontaneous recovery

Immediate reduction of rate of turn Spontaneous exit (g force decreasing, rate of turn decreasing) Less than 720°, spontaneous

recovery

Symmetric front collapse	A	A
Entry	Rocking back less than 45°	Rocking back less than 45°
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit	Dive forward 0° to 30°	Dive forward 0° to 30°
Change of course	Keeping course	Keeping course
Cascade occurs	No	No
Folding lines used	no	no
Unaccelerated collapse (at least 50 % chord)	A	В
Entry	Rocking back less than 45°	Rocking back less than 45°
Recovery	Spontaneous in less than 3 s	Spontaneous in 3 s to 5 s
Dive forward angle on exit	Dive forward 0° to 30°	Dive forward 30° to 60°
Change of course	Keeping course	Keeping course
Cascade occurs	No	No
Folding lines used	no	no
Accelerated collapse (at least 50 % chord)	A	В
Entry	Rocking back less than 45°	Rocking back less than 45°
-	Spontaneous in less than 3 s	Spontaneous in 3 s to 5 s
Dive forward angle on exit	Dive forward 0° to 30°	Dive forward 30° to 60°
Change of course	Keeping course	Keeping course
Cascade occurs	No	No
Folding lines used	no	no
Exiting deep stall (parachutal stall)	A	A
Deep stall achieved	Yes	Yes
	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit		Dive forward 0° to 30°
_	Changing course less than 45°	Changing course less than 45°
Cascade occurs		No
<u>High angle of attack recovery</u>	A	A
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Cascade occurs	No	No
Recovery from a developed full stall	A	В
Dive forward angle on exit	Dive forward 0° to 30°	Dive forward 30° to 60°
Collapse	No collapse	No collapse
Cascade occurs (other than collapses)	No	No
Rocking back	Less than 45°	Less than 45°
Line tension	Most lines tight	Most lines tight
Small asymmetric collapse	¦A	A
L		
Change of course until re-inflation	Less than 90°	Less than 90°
Change of course until re-inflation  Maximum dive forward or roll angle		Less than 90°
Maximum dive forward or roll angle	Dive or roll angle 15° to 45°	Less than 90° Dive or roll angle 15° to 45°
Maximum dive forward or roll angle Re-inflation behaviour	Dive or roll angle 15° to 45° Spontaneous re-inflation	Less than 90°
Maximum dive forward or roll angle	Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360°	Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of
Maximum dive forward or roll angle Re-inflation behaviour Total change of course	Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation)	Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous
Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs	Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No	Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation)
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Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs  Twist occurs Cascade occurs	Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No	Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneou re inflation) No
Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Twist occurs Cascade occurs Folding lines used	Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No no	Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneou re inflation) No No
Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Twist occurs Cascade occurs Folding lines used Large asymmetric collapse Change of course until re-inflation	Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No no  B  90° to 180°	Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneou re inflation) No No no
Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Twist occurs Cascade occurs Folding lines used  Large asymmetric collapse Change of course until re-inflation Maximum dive forward or roll angle	Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No no  B  90° to 180°	Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneou re inflation) No No no  B  90° to 180°
Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Twist occurs Cascade occurs Folding lines used Large asymmetric collapse Change of course until re-inflation Maximum dive forward or roll angle	Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No no  B  90° to 180° Dive or roll angle 15° to 45° Spontaneous re-inflation	Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No no  B  90° to 180° Dive or roll angle 15° to 45°

Cascade occurs	s No	No
Folding lines used	<b>I</b> no	no
Small asymmetric collapse accelerated	A	A
Change of course until re-inflation	Less than 90°	Less than 90°
Maximum dive forward or roll angle		Dive or roll angle 15° to 45°
	r Spontaneous re-inflation	Spontaneous re-inflation
Total change of course	•	Less than 360°
_		No (or only a small number of
conapse on the opposite side occurs	s No (or only a small number of collapsed cells with a spontaneous re inflation)	collapsed cells with a spontaneous re inflation)
Twist occurs	s No	No
Cascade occurs	s No	No
Folding lines used	<b>I</b> no	no
Large asymmetric collapse accelerated	В	В
Change of course until re-inflation	90° to 180°	90° to 180°
Maximum dive forward or roll angle	Dive or roll angle 15° to 45°	Dive or roll angle 15° to 45°
	Spontaneous re-inflation	Spontaneous re-inflation
Total change of course		Less than 360°
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous re inflation)	No (or only a small number of collapsed cells with a spontaneous re inflation)
Twist occurs	s No	No
Cascade occurs	s No	No
Folding lines used	<b>I</b> no	no
Directional control with a maintained	A	A
L/	. Voo	Voc
Able to keep course		Yes
180° turn away from the collapsed side		Yes
Amount of control range between turn and stall or spin	·	More than 50 % of the symmetric control travel
Trim speed spin tendency	A	A
Spin occurs	5 No	No
Low speed spin tendency	A	A
Spin occurs	• No	No
Spin occurs	s IVO	140
Recovery from a developed spin	В	A
Spin rotation angle after release	Stone eninning in 00° to 180°	Stops spinning in less than 90°
Cascade occurs		No
cascade occars		
B-line stall	A	A
Change of course before release	Changing course loss than 450	Changing course less than 45°
_		
	Remains stable with straight span	Remains stable with straight span
	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit		Dive forward 0° to 30°
Cascade occurs	5 No	No
Pig care	i.a	i.
<u>Big ears</u>	¦A	¦ <b>A</b>
	Standard technique	Dedicated controls
Behaviour during big ears		CL LL CL LL
		Stable flight
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
	Spontaneous in less than 3 s	•
Recovery Dive forward angle on exit	Spontaneous in less than 3 s	Spontaneous in less than 3 s Dive forward 0° to 30°
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Recovery Dive forward angle on exit	y Spontaneous in less than 3 s t Dive forward 0° to 30°	Spontaneous in less than 3 s Dive forward 0° to 30°
Recovery Dive forward angle on exit	y Spontaneous in less than 3 s t Dive forward 0° to 30°  A Standard technique	Spontaneous in less than 3 s Dive forward 0° to 30°

**Recovery** Spontaneous in less than 3 s

Spontaneous in less than 3  $\ensuremath{\text{s}}$ 

Twist occurs No

No

## Dive forward angle on exit Dive forward 0° to 30° Behaviour immediately after releasing the Stable flight accelerator while maintaining big ears

Dive forward 0° to 30° Stable flight

Alternative means of directional control	A
180° turn achievable in 20 s Yes	Yes
Stall or spin occurs No	No
Any other flight procedure and/or configuration described in the use	er's manual





**UP KIBO X SM** 

Inflation/take-off

Type designation UP Kibo X SM

Type test reference no DHV GS-01-2885-24

Holder of certification UP International GmbH Manufacturer UP International GmbH

Classification B

Winch towing No

Number of seats min / max 1/1

**Accelerator** Yes Trimmers No

BEHAVIOUR AT MIN WEIGHT IN

FLIGHT (80KG)





No release

Α

Rising behaviour Smooth, easy and constant rising

Special take off technique required No

**Landing** 

Special landing technique required No

Speeds in straight flight

Trim speed more than 30 km/h Yes

Speed range using the controls larger than 10 km/h Yes

Minimum speed Less than 25 km/h

Control movement

Symmetric control pressure Increasing

Symmetric control travel Greater than 60 cm

Pitch stability exiting accelerated flight

Dive forward angle on exit Dive forward less than 30°

Oscillations Reducing

Collapse occurs No

Collapse occurs No

Pitch stability operating controls during accelerated flight

Roll stability and damping

Tendency to return to straight flight Spontaneous exit

Behaviour exiting a fully developed spiral dive Initial response of glider (first 180°) Immediate reduction of rate of turn

Tendency to return to straight flight Spontaneous exit (g force decreasing, rate of

turn decreasing)

Turn angle to recover normal flight Less than 720°, spontaneous recovery

Symmetric front collapse

**Entry** Rocking back less than 45° **Recovery** Spontaneous in less than 3 s Dive forward angle on exit Dive forward 0° to 30°

Change of course Keeping course

**BEHAVIOUR AT MAX** IN FLIGHT (103KG)



No release

Α -------

No

Smooth, easy and constant rising

Yes Yes

Less than 25 km/h

Greater than 65 cm

Dive forward less than 30°

No

Α

Nο

Reducing

Immediate reduction of rate of turn Spontaneous exit (g force decreasing, rate of turn decreasing)

Less than 720°, spontaneous recovery

Rocking back less than 45° Spontaneous in less than 3 s Dive forward 0° to 30° Keeping course

Cascade occurs No	No
Folding lines used no	no

Folding lines used	no	no
Unaccelerated collapse (at least 50 % chord)	<b>.</b>	A
<u> </u>	<b></b>	<u> </u>
-	Rocking back less than 45°	Rocking back less than 45°
Dive forward angle on exit	Spontaneous in less than 3 s	Spontaneous in less than 3 s  Dive forward 0° to 30°
Change of course		
Cascade occurs		Keeping course No
Folding lines used		no
rolding lines used	110	110
Accelerated collapse (at least 50 % chord)	В	A
<u> </u>	i	<u>i</u>
Entry	Rocking back less than 45°	Rocking back less than 45°
_	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit		Dive forward 0° to 30°
_	Entering a turn of less than 90°	Keeping course
Cascade occurs		No
Folding lines used	no	no
!=	!_	12
Exiting deep stall (parachutal stall)	¦B	A
Deep stall achieved	Yes	Yes
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit	Dive forward 30° to 60°	Dive forward 0° to 30°
Change of course	Changing course less than 45°	Changing course less than 45°
Cascade occurs	No	No
High angle of attack recovery	A	Α
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Cascade occurs	•	No
Recovery from a developed full stall	В	A
Dive forward angle on exit	Dive forward 30° to 60°	Dive forward 0° to 30°
	No collapse	No collapse
•	·	No
Cascade occurs (other than collapses)		
Cascade occurs (other than collapses) Rocking back		
Rocking back	Less than 45°	Less than 45°
Rocking back		
Rocking back	Less than 45°	Less than 45°
Rocking back Line tension Small asymmetric collapse	Less than 45° Most lines tight	Less than 45° Most lines tight
Rocking back Line tension  Small asymmetric collapse  Change of course until re-inflation	Less than 45° Most lines tight  A  Less than 90°	Less than 45° Most lines tight  A Less than 90°
Rocking back Line tension  Small asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle	Less than 45° Most lines tight  A  Less than 90° Dive or roll angle 15° to 45°	Less than 45° Most lines tight  A  Less than 90° Dive or roll angle 15° to 45°
Rocking back Line tension  Small asymmetric collapse  Change of course until re-inflation  Maximum dive forward or roll angle  Re-inflation behaviour	Less than 45° Most lines tight  A  Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation	Less than 45° Most lines tight  A  Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation
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Rocking back Line tension  Small asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs  Twist occurs Cascade occurs Folding lines used  Large asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle	Less than 45° Most lines tight  A  Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No no  B  90° to 180°	Less than 45° Most lines tight  A  Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No no  B  90° to 180°
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Rocking back Line tension  Small asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs  Twist occurs Cascade occurs Folding lines used  Large asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs  Twist occurs Cascade occurs Folding lines used  Small asymmetric collapse accelerated	Less than 45° Most lines tight  A  Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No no  B  90° to 180° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No no  Less than 90°	Less than 45° Most lines tight  A  Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No no  B  90° to 180° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No No no
Small asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Cascade occurs Folding lines used  Large asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour Total change of course Collapse on the opposite side occurs Cascade occurs Folding lines used  Small asymmetric collapse accelerated  Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour	Less than 45° Most lines tight  A  Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No no  B  90° to 180° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No no  A  Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation	Less than 45° Most lines tight  A  Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No no  B  90° to 180° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous re inflation) No No No No No no  Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation
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Cascade occurs No

Folding lines used no

No

no

Change of course until re-inflation 90° to 180°  Maximum dive forward or roll angle Dive or roll angle 15° to 45°  Re-inflation behaviour Spontaneous re-inflation Total change of course Less than 360°  Collapse on the opposite side occurs No (or only a small number of collapsed cells with a spontaneous re inflation)  Twist occurs No Cascade occurs No Folding lines used no  Directional control with a maintained asymmetric collapse  Able to keep course Yes 180° turn away from the collapsed side possible in Yes 10's  Amount of control range between turn and stall or More than 50 % of the symmetric control spin travel  Trim speed spin tendency  A Spin occurs No  Spin rotation angle after release Stops spinning in less than 90°  Stops spinning in 90° to Cascade occurs No  Change of course before release Changing course less than 45° Behaviour before release Remains stable with straight span Recovery Spontaneous re-inflation Spin to tail a 30° No No Cascade occurs No No No Cascade occurs No No No Cascade occurs No No Dive forward 0° to 30° Dive fo	per of collapsed re inflation)
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Directional control with a maintained asymmetric collapse	/mmetric
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Spin occurs No  Recovery from a developed spin  A  Spin rotation angle after release Stops spinning in less than 90° Cascade occurs No  No  B-line stall  A  Change of course before release Changing course less than 45° Behaviour before release Remains stable with straight span Recovery Spontaneous in less than 3 s  Dive forward angle on exit Dive forward 0° to 30°  No  Stops spinning in 90° to No  No  Changing course less that A  Remains stable with straight span Remains stable with straight span Remains stable with straight span Recovery Spontaneous in less than 3 s  Dive forward 0° to 30°  Dive forward 0° to 30°	
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Recovery Spontaneous in less than 3 s  Spontaneous in less than Dive forward angle on exit Dive forward 0° to 30°  Dive forward 0° to 30°	n 45°
<b>Dive forward angle on exit</b> Dive forward 0° to 30° Dive forward 0° to 30°	
	3 s
Cascade occurs No No	
Big ears A	
Entry procedure Standard technique Standard technique	
Behaviour during big ears Stable flight Stable flight	
<b>Recovery</b> Spontaneous in less than 3 s Spontaneous in less than	3 s
<b>Dive forward angle on exit</b> Dive forward 0° to 30° Dive forward 0° to 30°	
Big ears in accelerated flight A A	
Entry procedure Standard technique Standard technique	
Behaviour during big ears Stable flight Stable flight	
<b>Recovery</b> Spontaneous in less than 3 s Spontaneous in less than	3 s
<b>Dive forward angle on exit</b> Dive forward 0° to 30° Dive forward 0° to 30°	
Behaviour immediately after releasing the Stable flight  accelerator while maintaining big ears  Stable flight	
Alternative means of directional control A	
180° turn achievable in 20 s Yes Yes	
Stall or spin occurs No No	
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





**UP KIBO X S** 

Inflation/take-off

Type designation UP Kibo X S

Type test reference no DHV GS-01-2886-24 Holder of certification UP International GmbH

Manufacturer UP International GmbH

**Classification** B

Winch towing Yes

Number of seats min / max 1/1

**Accelerator** Yes Trimmers No

> BEHAVIOUR AT MIN WEIGHT IN FLIGHT (70KG)





No release Α

Beni Stocker



BEHAVIOUR AT MAX WEIGHT

IN FLIGHT (90KG)

Rising behaviour Smooth, easy and constant rising Smooth, easy and constant rising Special take off technique required No No

**Landing** 

Special landing technique required No

Speeds in straight flight Trim speed more than 30 km/h Yes Yes

Speed range using the controls larger than 10 km/h Yes Yes

> Minimum speed Less than 25 km/h Less than 25 km/h

Control movement

Symmetric control pressure Increasing

Symmetric control travel Greater than 55 cm Greater than 60 cm

Pitch stability exiting accelerated flight

Dive forward angle on exit Dive forward less than 30° Dive forward less than 30° Collapse occurs No No

Pitch stability operating controls during Α accelerated flight

Collapse occurs No Nο

Roll stability and damping

Oscillations Reducing Reducing

Tendency to return to straight flight Spontaneous exit

Behaviour exiting a fully developed spiral dive

Initial response of glider (first 180°) Immediate reduction of rate of turn Immediate reduction of rate of turn Spontaneous exit (g force decreasing,

Tendency to return to straight flight Spontaneous exit (g force decreasing, rate of turn decreasing)

Turn angle to recover normal flight Less than 720°, spontaneous recovery Less than 720°, spontaneous recovery

Symmetric front collapse

**Entry** Rocking back less than 45° **Recovery** Spontaneous in less than 3 s

Dive forward angle on exit Dive forward 0° to 30°

Change of course Keeping course

Rocking back less than 45° Spontaneous in less than 3 s Dive forward 0° to 30° Entering a turn of less than 90°

rate of turn decreasing)

Cascade occurs No	No
Folding lines used no	no

Folding lines used	no	no
Unaccelerated collapse (at least 50 % chord)	A	A
Entry	Rocking back less than 45°	Rocking back less than 45°
-	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit	•	Dive forward 0° to 30°
Change of course		Entering a turn of less than 90°
Cascade occurs		_
		No
Folding lines used	no	no
Accelerated collapse (at least 50 % chord)	A	В
Entry	Rocking back less than 45°	Rocking back less than 45°
	Spontaneous in less than 3 s	Spontaneous in less than 3 s
_	-	Dive forward 30° to 60°
Dive forward angle on exit		
Change of course		Entering a turn of less than 90°
Cascade occurs		No
Folding lines used	no	no
Exiting deep stall (parachutal stall)	A	Α
Deep stall achieved	Yes	Yes
		Spontaneous in less than 3 s
Recovery Dive forward angle on exit	Spontaneous in less than 3 s	'
		Dive forward 0° to 30°
_	Changing course less than 45°	Changing course less than 45°
Cascade occurs	s No	No
	1	1
High angle of attack recovery	¦A	¦A
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Cascade occurs	s No	No
Recovery from a developed full stall	A	A
Dive forward angle on exit	Dive forward 0° to 30°	Dive forward 0° to 30°
_	No collapse	No collapse
Cascade occurs (other than collapses)	•	No
	Less than 45°	Less than 45°
Line tension	Most lines tight	Most lines tight
Small asymmetric collapse	A	A
Change of course until re-inflation	Less than 90°	Less than 90°
Maximum dive forward or roll angle		Dive or roll angle 15° to 45°
_	Spontaneous re-inflation	Spontaneous re-inflation
Total change of course	-	Less than 360°
	No (or only a small number of collapsed cells with a spontaneous re inflation)	No (or only a small number of collapsed cells with a spontaneous re inflation)
Twist occurs		No
Cascade occurs		No
Folding lines used	no	no
Large asymmetric collapse	В	В
Change of course until re-inflation	90° to 180°	90° to 180°
Maximum dive forward or roll angle		Dive or roll angle 15° to 45°
_	Spontaneous re-inflation	Spontaneous re-inflation
Total change of course	•	Less than 360°
_		
Conapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous re inflation)	No (or only a small number of collapsed cells with a spontaneous re inflation)
Twist occurs	•	No
Cascade occurs		No
Folding lines used		no
i olding lines used	· · · <del>-</del>	
Small asymmetric collapse accelerated	A	A
Change of course until re-inflation	Less than 90°	Less than 90°
Maximum dive forward or roll angle		Dive or roll angle 15° to 45°
_	Spontaneous re-inflation	Spontaneous re-inflation
Total change of course	•	Less than 360°
_	: No (or only a small number of collapsed cells	No (or only a small number of collapsed
Composite on the opposite side occurs	with a spontaneous re inflation)	cells with a spontaneous re inflation)
	: No	No

Twist occurs No No
Cascade occurs No No
Folding lines used no no

Large asymmetric collapse accelerated	В	В
Change of course until re-inflation	90° to 180°	90° to 180°
Maximum dive forward or roll angle	Dive or roll angle 15° to 45°	Dive or roll angle 15° to 45°
Re-inflation behaviour	Spontaneous re-inflation	Spontaneous re-inflation
Total change of course	Less than 360°	Less than 360°
Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous re inflation)	No (or only a small number of collapse cells with a spontaneous re inflation)
Twist occurs	No	No
Cascade occurs	No	No
Folding lines used	no	no
Directional control with a maintained asymmetric collapse	А	А
Able to keep course	Yes	Yes
180° turn away from the collapsed side possible in		Yes
Amount of control range between turn and stall or		More than 50 % of the symmetric control travel
Trim speed spin tendency	A	A
Spin occurs	No	No
Low speed spin tendency	¦ <b>A</b>	A
Spin occurs	No	No
Recovery from a developed spin	B	A
Spin rotation angle after release	Stone chinning in 000 to 1000	Stone eninning in lose than 000
Cascade occurs		Stops spinning in less than 90° No
cuscuuc occurs		110
B-line stall	A	A
Change of course before release	Changing course less than 45°	Changing course less than 45°
_	Remains stable with straight span	Remains stable with straight span
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit	Dive forward 0° to 30°	Dive forward 0° to 30°
Cascade occurs	No	No
Big ears	A	A
Entry procedure	Standard technique	Dedicated controls
Behaviour during big ears		Stable flight
	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit	•	Dive forward 0° to 30°
Big ears in accelerated flight	<b>A</b>	A
Fntry procedure	Standard technique	Dedicated controls
Behaviour during big ears		Stable flight
	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit	•	Dive forward 0° to 30°
Behaviour immediately after releasing the accelerator while maintaining big ears	Stable flight	Stable flight
Alternative means of directional control	<b>A</b>	A
180° turn achievable in 20 s	Voc	Yes
180° turn achievable in 20 s Stall or spin occurs		ves No
	INU	INL

Any other flight procedure and/or configuration described in the user's manual

## PRINT

### DHV TESTREPORT EN 926-2:2013+A1:2021

**UP KIBO X XS** 

Type designation UP Kibo X XS

Type test reference no DHV GS-01-2887-24

Holder of certification UP International GmbH

Manufacturer UP International GmbH

**Classification** B

Winch towing Yes

Number of seats min / max 1/1

**Accelerator** Yes

**Trimmers** No

BEHAVIOUR AT MIN WEIGHT IN BEHAVIOUR AT MAX

FLIGHT (60KG)

**Test pilots** 



Juliette Schönsee **Expert Reiner Brunn** 



WEIGHT IN FLIGHT (78KG)

decreasing, rate of turn decreasing)



**Beni Stocker** 

Expere	Remer Brunn	
	No release	No release
<u>Inflation/take-off</u>	A	Α
Rising behaviour	Smooth, easy and constant rising	Smooth, easy and constant rising
Special take off technique required	No	No
Landing	A	A
Special landing technique required	No	No
Speeds in straight flight	A	A
Trim speed more than 30 km/h	Yes	Yes
Speed range using the controls larger than 10 km/h		Yes
Minimum speed	Less than 25 km/h	Less than 25 km/h
Control movement	A	A
Symmetric control pressure	Increasing	Increasing
Symmetric control travel	Greater than 55 cm	Greater than 55 cm
Pitch stability exiting accelerated flight	A	A
Dive forward angle on exit	: Dive forward less than 30°	Dive forward less than 30°
Collapse occurs	: No	No
Pitch stability operating controls during accelerated flight	A	A
Collapse occurs		No
Roll stability and damping	A	A
Oscillations		Reducing
Stability in gentle spirals	A	A
Tendency to return to straight flight	Spontaneous exit	Spontaneous exit
Behaviour exiting a fully developed spiral dive	A	A
Initial response of glider (first 180°)	Immediate reduction of rate of turn	Immediate reduction of rate of turn
Tendency to return to straight flight	Spontaneous exit (g force decreasing,	Spontaneous exit (g force

rate of turn decreasing)

Turn angle to recover normal flight	Less than 720°, spontaneous recovery	Less than 720°, spontaneous recovery
Symmetric front collapse	A	A
Entry	Rocking back less than 45°	Rocking back less than 45°
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit	Dive forward 0° to 30°	Dive forward 0° to 30°
Change of course	Keeping course	Entering a turn of less than 90°
Cascade occurs		No
Folding lines used	no	no
Unaccelerated collapse (at least 50 % chord)	A	В
Entry	Rocking back less than 45°	Rocking back less than 45°
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit	Dive forward 0° to 30°	Dive forward 30° to 60°
Change of course	Entering a turn of less than 90°	Entering a turn of less than 90°
Cascade occurs	No	No
Folding lines used	no	no
Accelerated collapse (at least 50 % chord)	A	В
Entry	Rocking back less than 45°	Rocking back less than 45°
	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit	Dive forward 0° to 30°	Dive forward 30° to 60°
Change of course	Entering a turn of less than 90°	Entering a turn of less than 90°
Cascade occurs	No	No
Folding lines used	no	no
Exiting deep stall (parachutal stall)	A	A
Deep stall achieved	Yes	Yes
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit	Dive forward 0° to 30°	Dive forward 0° to 30°
Change of course	Changing course less than 45°	Changing course less than 45°
Cascade occurs	No	No
<u>High angle of attack recovery</u>	A	A
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Cascade occurs	•	No
Recovery from a developed full stall	В	В
Recovery from a developed full stall  Dive forward angle on exit	±	Dive forward 30° to 60°
Dive forward angle on exit	Dive forward 30° to 60°	Dive forward 30° to 60°
Dive forward angle on exit Collapse	Dive forward 30° to 60° No collapse	
Dive forward angle on exit	Dive forward 30° to 60° No collapse No	Dive forward 30° to 60° No collapse
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back	Dive forward 30° to 60° No collapse No	Dive forward 30° to 60° No collapse No
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back Line tension	Dive forward 30° to 60°  No collapse  No Less than 45°  Most lines tight	Dive forward 30° to 60°  No collapse  No Less than 45°  Most lines tight
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back Line tension Small asymmetric collapse	Dive forward 30° to 60°  No collapse  No  Less than 45°  Most lines tight	Dive forward 30° to 60° No collapse No Less than 45° Most lines tight
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back Line tension Small asymmetric collapse Change of course until re-inflation	Dive forward 30° to 60°  No collapse  No Less than 45°  Most lines tight  A Less than 90°	Dive forward 30° to 60°  No collapse  No Less than 45°  Most lines tight  A  Less than 90°
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back Line tension Small asymmetric collapse Change of course until re-inflation Maximum dive forward or roll angle	Dive forward 30° to 60°  No collapse  No Less than 45°  Most lines tight  A  Less than 90°  Dive or roll angle 0° to 15°	Dive forward 30° to 60°  No collapse  No Less than 45°  Most lines tight  A  Less than 90°  Dive or roll angle 15° to 45°
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back Line tension Small asymmetric collapse Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour	Dive forward 30° to 60°  No collapse  No Less than 45°  Most lines tight  A  Less than 90°  Dive or roll angle 0° to 15°  Spontaneous re-inflation	Dive forward 30° to 60°  No collapse  No Less than 45°  Most lines tight  A  Less than 90°
Collapse Cascade occurs (other than collapses) Rocking back Line tension  Small asymmetric collapse  Change of course until re-inflation Maximum dive forward or roll angle	Dive forward 30° to 60°  No collapse  No Less than 45°  Most lines tight  A Less than 90°  Dive or roll angle 0° to 15°  Spontaneous re-inflation Less than 360°	Dive forward 30° to 60°  No collapse  No Less than 45° Most lines tight  A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of
Dive forward angle on exit Collapse Cascade occurs (other than collapses) Rocking back Line tension  Small asymmetric collapse Change of course until re-inflation Maximum dive forward or roll angle Re-inflation behaviour	Dive forward 30° to 60°  No collapse  No Less than 45°  Most lines tight  A  Less than 90°  Dive or roll angle 0° to 15°  Spontaneous re-inflation Less than 360°  No (or only a small number of collapsed cells with a spontaneous re inflation)	Dive forward 30° to 60°  No collapse  No Less than 45° Most lines tight  A Less than 90° Dive or roll angle 15° to 45° Spontaneous re-inflation Less than 360° No (or only a small number of collapsed cells with a spontaneous

Large asymmetric collapse

Change of course until re-inflation 90° to 180°

Maximum dive forward or roll angle Dive or roll angle 15° to 45°

Re-inflation behaviour Spontaneous re-inflation

Total change of course Less than 360°

B

B

90° to 180°

Dive or roll angle 15° to 45°

Spontaneous re-inflation

Less than 360°

no

Folding lines used no

Collapse on the opposite side occurs	No (or only a small number of collapsed cells with a spontaneous re inflation)	No (or only a small number of collapsed cells with a spontaneous re inflation)
Twist occurs	s No	No
Cascade occurs		No
Folding lines used		no
rolanig inico asce		
Small asymmetric collapse accelerated	A	A
L	<u> </u>	<u> </u>
Change of course until re-inflation		Less than 90°
Maximum dive forward or roll angle		Dive or roll angle 15° to 45°
Re-inflation behavious	Spontaneous re-inflation	Spontaneous re-inflation
Total change of course	Less than 360°	Less than 360°
Collapse on the opposite side occurs	s No (or only a small number of collapsed cells with a spontaneous re inflation)	No (or only a small number of collapsed cells with a spontaneous re inflation)
Twist occurs	s No	No
Cascade occurs	s No	No
Folding lines used	l no	no
•		
Large asymmetric collapse accelerated	В	В
	<u> </u>	<u> </u>
Change of course until re-inflation		90° to 180°
Maximum dive forward or roll angle		Dive or roll angle 15° to 45°
Re-inflation behavious	Spontaneous re-inflation	Spontaneous re-inflation
Total change of course	Less than 360°	Less than 360°
	No (or only a small number of collapsed cells with a spontaneous re inflation)	No (or only a small number of collapsed cells with a spontaneous re inflation)
Twist occurs		No
Cascade occurs	s No	No
Folding lines used	Ino	no
Directional control with a maintained asymmetric collapse	A	Α
Able to keep course	. Yes	Yes
180° turn away from the collapsed side possible in 10 s	Yes	Yes
Amount of control range between turn and stall or spir		More than 50 % of the symmetric control travel
Trim speed spin tendency	A	A
Trini speed spin tendency	1-1	±
	: No	No
Spin occurs	110	
Spin occurs Low speed spin tendency		A
Low speed spin tendency Spin occurs	A No	No
Low speed spin tendency	A No	<u> </u>
Low speed spin tendency Spin occurs	A No	No A
Low speed spin tendency  Spin occurs  Recovery from a developed spin	A  No  A  Stops spinning in less than 90°	No
Spin occurs  Recovery from a developed spin  Spin rotation angle after release	A  No  A  Stops spinning in less than 90°	No A Stops spinning in less than 90°
Spin occurs  Recovery from a developed spin  Spin rotation angle after release Cascade occurs	A No  A Stops spinning in less than 90°  No	No  Stops spinning in less than 90° No
Spin occurs  Recovery from a developed spin  Spin rotation angle after release Cascade occurs	A  S No  A  S Stops spinning in less than 90°  S No	No  A  Stops spinning in less than 90°  No
Spin occurs  Recovery from a developed spin  Spin rotation angle after release Cascade occurs  B-line stall  Change of course before release	A Stops spinning in less than 90° No A Changing course less than 45°	No  A  Stops spinning in less than 90° No  A  Changing course less than 45°
Spin occurs  Recovery from a developed spin  Spin rotation angle after release Cascade occurs  B-line stall  Change of course before release Behaviour before release	A  Stops spinning in less than 90°  No  A  Changing course less than 45° Remains stable with straight span	No  Stops spinning in less than 90° No  A  Changing course less than 45° Remains stable with straight span
Spin occurs  Recovery from a developed spin  Spin rotation angle after release Cascade occurs  B-line stall  Change of course before release Behaviour before release Recovery	A Stops spinning in less than 90° No A Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s	No  Stops spinning in less than 90° No  A  Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s
Spin occurs  Recovery from a developed spin  Spin rotation angle after release Cascade occurs  B-line stall  Change of course before release Behaviour before release	A Stops spinning in less than 90° No A Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s	No  Stops spinning in less than 90° No  A  Changing course less than 45° Remains stable with straight span
Spin occurs  Recovery from a developed spin  Spin rotation angle after release Cascade occurs  B-line stall  Change of course before release Behaviour before release Recovery	A  Stops spinning in less than 90° No  A  Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30°	No  Stops spinning in less than 90° No  A  Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s
Spin occurs  Recovery from a developed spin  Spin rotation angle after release Cascade occurs  B-line stall  Change of course before release Behaviour before release Recovery Dive forward angle on exit	A  Stops spinning in less than 90° No  A  Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30°	No Stops spinning in less than 90° No A Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30°
Spin occurs  Recovery from a developed spin  Spin rotation angle after release Cascade occurs  B-line stall  Change of course before release Behaviour before release Recovery Dive forward angle on exit	A  Stops spinning in less than 90° No  A  Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No	No Stops spinning in less than 90° No A Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30°
Spin occurs  Recovery from a developed spin  Spin rotation angle after release Cascade occurs  B-line stall  Change of course before release Behaviour before release Recovery Dive forward angle on exit Cascade occurs	A Stops spinning in less than 90° No A Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No	No  Stops spinning in less than 90° No  A  Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No
Spin occurs  Recovery from a developed spin  Spin rotation angle after release Cascade occurs  B-line stall  Change of course before release Behaviour before release Recovery Dive forward angle on exit Cascade occurs	A Stops spinning in less than 90° No A Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No A Standard technique	No  Stops spinning in less than 90° No  A  Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No  A  Dedicated controls
Spin occurs  Recovery from a developed spin  Spin rotation angle after release Cascade occurs  B-line stall  Change of course before release Behaviour before release Recovery Dive forward angle on exit Cascade occurs  Big ears  Entry procedure Behaviour during big ears	A  Stops spinning in less than 90° No  A  Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No  A  Standard technique Stable flight	No  Stops spinning in less than 90° No  A  Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No  A  Dedicated controls Stable flight
Spin occurs  Recovery from a developed spin  Spin rotation angle after release Cascade occurs  B-line stall  Change of course before release Behaviour before release Recovery Dive forward angle on exist Cascade occurs  Big ears  Entry procedure Behaviour during big ears Recovery	A  Stops spinning in less than 90° No  A  Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No  A  Standard technique Stable flight Spontaneous in less than 3 s	No  Stops spinning in less than 90° No  A  Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No  A  Dedicated controls Stable flight Spontaneous in less than 3 s
Spin occurs  Recovery from a developed spin  Spin rotation angle after release Cascade occurs  B-line stall  Change of course before release Behaviour before release Recovery Dive forward angle on exit Cascade occurs  Big ears  Entry procedure Behaviour during big ears	A  Stops spinning in less than 90° No  A  Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No  A  Standard technique Stable flight Spontaneous in less than 3 s	No  Stops spinning in less than 90° No  A  Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No  A  Dedicated controls Stable flight
Spin occurs  Recovery from a developed spin  Spin rotation angle after release Cascade occurs  B-line stall  Change of course before release Behaviour before release Recovery Dive forward angle on exit Cascade occurs  Big ears  Entry procedure Behaviour during big ears Recovery Dive forward angle on exit	A  Stops spinning in less than 90° No  A  Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No  A  Standard technique Stable flight Spontaneous in less than 3 s Dive forward 0° to 30°	Stops spinning in less than 90° No  A  Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No  A  Dedicated controls Stable flight Spontaneous in less than 3 s Dive forward 0° to 30°
Spin occurs  Recovery from a developed spin  Spin rotation angle after release Cascade occurs  B-line stall  Change of course before release Behaviour before release Recovery Dive forward angle on exist Cascade occurs  Big ears  Entry procedure Behaviour during big ears Recovery	A  Stops spinning in less than 90° No  A  Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No  A  Standard technique Stable flight Spontaneous in less than 3 s Dive forward 0° to 30°	No  Stops spinning in less than 90° No  A  Changing course less than 45° Remains stable with straight span Spontaneous in less than 3 s Dive forward 0° to 30° No  A  Dedicated controls Stable flight Spontaneous in less than 3 s

### Behaviour during big ears Stable flight

**Recovery** Spontaneous in less than 3 s

Dive forward angle on exit Dive forward 0° to 30°

# **Behaviour immediately after releasing the** Stable flight accelerator while maintaining big ears

Stable flight Spontaneous in less than 3 s Dive forward 0° to 30° Stable flight

Alternative means of directional control A	A		
180° turn achievable in 20 s Yes	Yes		
Stall or spin occurs No	No		
Any other flight procedure and/or configuration described in the user's manual			