



DHV TESTREPORT EN926-2:2014

UP MAKALU 4 XS

Type designation UP Makalu 4 XS
Type test reference no DHV GS-01-2210-16
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 (55KG)

Test pilots



Sophia Putzer
Expert Harald Buntz

BEHAVIOUR AT MAX WEIGHT IN FLIGHT (75KG)



Beni Stocker

<u>Inflation/take-off</u>	A	A
Rising behaviour Smooth, easy and constant rising		Smooth, easy and constant rising
Special take off technique required No		No
<u>Landing</u>	A	A
Special landing technique required No		No
<u>Speeds in straight flight</u>	A	A
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
<u>Control movement</u>	A	A
Symmetric control pressure Increasing		Increasing
Symmetric control travel Greater than 55 cm		Greater than 55 cm
<u>Pitch stability exiting accelerated flight</u>	A	A
Dive forward angle on exit Dive forward less than 30°		Dive forward less than 30°
Collapse occurs No		No
<u>Pitch stability operating controls during accelerated flight</u>	A	A
Collapse occurs No		No
<u>Roll stability and damping</u>	A	A
Oscillations Reducing		Reducing
<u>Stability in gentle spirals</u>	A	A
Tendency to return to straight flight Spontaneous exit		Spontaneous exit
<u>en : Verhalten beim Verlassen einer vollständigen Steilspirale</u>	B	A
en : Erstes Ansprechen des Gleitschirms (die ersten 180°) en : unmittelbare Verringerung der Drehgeschwindigkeit		en : unmittelbare Verringerung der Drehgeschwindigkeit

Tendency to return to straight flight en : selbstständiges Ausleiten (G-Kraft abnehmend, Drehgeschwindigkeit abnehmend)

en : selbstständiges Ausleiten (G-Kraft abnehmend, Drehgeschwindigkeit abnehmend)

Turn angle to recover normal flight 720° to 1 080°, spontaneous recovery

Less than 720°, spontaneous recovery

Symmetric front collapse

A

A

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
en : Faltleinen wurden benutzt no

Rocking back less than 45°
 Spontaneous in less than 3 s
 Dive forward 0° to 30°
 Keeping course
 No
 no

en : Symmetrischer Frontklapper mindestens 50% Flügeltiefe

A

A

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
en : Faltleinen wurden benutzt no

Rocking back less than 45°
 Spontaneous in less than 3 s
 Dive forward 0° to 30°
 Entering a turn of less than 90°
 No
 no

en : Symmetrischer Frontklapper im beschleunigten Flug

A

A

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
en : Faltleinen wurden benutzt no

Rocking back less than 45°
 Spontaneous in less than 3 s
 Dive forward 0° to 30°
 Entering a turn of less than 90°
 No
 no

Exiting deep stall (parachutal stall)

A

A

Deep stall achieved Yes
Recovery Spontaneous in less than 3 s
Dive forward angle on exit Dive forward 0° to 30°
Change of course Changing course less than 45°
Cascade occurs No

Yes
 Spontaneous in less than 3 s
 Dive forward 0° to 30°
 Changing course less than 45°
 No

High angle of attack recovery

A

A

Recovery Spontaneous in less than 3 s
Cascade occurs No

Spontaneous in less than 3 s
 No

Recovery from a developed full stall

A

A

Dive forward angle on exit Dive forward 0° to 30°
Collapse No collapse
Cascade occurs (other than collapses) No
Rocking back Less than 45°
Line tension Most lines tight

Dive forward 0° to 30°
 No collapse
 No
 Less than 45°
 Most lines tight

en : Kleiner einseitiger Klapper

A

A

Change of course until re-inflation Less than 90°
Maximum dive forward or roll angle Dive or roll angle 0° to 15°
Re-inflation behaviour Spontaneous re-inflation
Total change of course Less than 360°
Collapse on the opposite side occurs en : Nein (oder nur eine kleine Anzahl von eingeklappten Zellen mit selbstständiger Wiederöffnung)
Twist occurs No
Cascade occurs No
en : Faltleinen wurden benutzt no

Less than 90°
 Dive or roll angle 0° to 15°
 Spontaneous re-inflation
 Less than 360°
 en : Nein (oder nur eine kleine Anzahl von eingeklappten Zellen mit selbstständiger Wiederöffnung)
 No
 No
 no

en : Großer einseitiger Klapper

A

A

Change of course until re-inflation Less than 90°
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 en : Nein (oder nur eine kleine Anzahl von eingeklappten Zellen mit selbstständiger Wiederöffnung)
Twist occurs No
Cascade occurs No
en : Faltleinen wurden benutzt no

Less than 90°
 Dive or roll angle 15° to 45°
 Spontaneous re-inflation
 Less than 360°
 en : Nein (oder nur eine kleine Anzahl von eingeklappten Zellen mit selbstständiger Wiederöffnung)
 No
 No
 no

en : Kleiner einseitiger Klapper im beschleunigten Flug

A

A

Change of course until re-inflation Less than 90°
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 en : Nein (oder nur eine kleine Anzahl von eingeklappten Zellen mit selbstständiger Wiederöffnung)
Twist occurs No
Cascade occurs No
en : Faltleinen wurden benutzt no

Less than 90°
 Dive or roll angle 15° to 45°
 Spontaneous re-inflation
 Less than 360°
 en : Nein (oder nur eine kleine Anzahl von eingeklappten Zellen mit selbstständiger Wiederöffnung)
 No
 No
 no

en : Großer einseitiger Klapper im beschleunigten Flug	B	B
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	en : Nein (oder nur eine kleine Anzahl von eingeklappten Zellen mit selbstständiger Wiederöffnung)	en : Nein (oder nur eine kleine Anzahl von eingeklappten Zellen mit selbstständiger Wiederöffnung)
Twist occurs	No	No
Cascade occurs	No	No
en : Faltleinen wurden benutzt	no	no
Directional control with a maintained asymmetric collapse	A	A
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 spin	More than 50 % of the symmetric control travel	More than 50 % of the symmetric control travel
Trim speed spin tendency	A	A
Spin occurs	No	No
Low speed spin tendency	A	A
Spin occurs	No	No
Recovery from a developed spin	A	A
Spin rotation angle after release	Stops spinning in less than 90°	Stops spinning in less than 90°
Cascade occurs	No	No
B-line stall	A	A
Change of course before release	Changing course less than 45°	Changing course less than 45°
Behaviour before release	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	Stable flight
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°
Big ears in accelerated flight	A	A
Entry procedure	Standard technique	Dedicated controls
Behaviour during big ears	Stable flight	Stable flight
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°
Behaviour immediately after releasing the accelerator while maintaining big ears	Stable flight	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		
No other flight procedure or configuration described in the user's manual		