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DHV-tested Equipment Flying Equipment Database Manufacturers / Dealers Flying Schools Clubs

## TECHNICAL DATA DHV TESTREPORT LTF DATASHEET PARTS LIST OPERATING INSTRUCTION

## DHV TESTREPORT LTF

UP K2 4 ML		
Type designation	UP K2 4 ML	
Type test reference no		
Holder of certification		N American
	UP International GmbH	
Classification		
Winch towing	Yes	
Number of seats min / max		
Accelerator		
Trimmers	Yes	
	BEHAVIOUR AT MIN WEIGHT IN	BEHAVIOUR AT MAX
Test pilots		WEIGHT IN FLIGHT (230KG)
	Josef Bauer	Harald Buntz
	No release	No release
Inflation/take-off	Α	A
_	Smooth, easy and constant rising	Smooth, easy and constant rising
Special take off technique required	No	No
Landing	Α	Α
Special landing technique required	No	No
<u>Speeds in straight flight</u>	Α	Α
Trim speed more than 30 km/h	Yes	Yes
Speed range using the controls larger than 10	Yes	Yes
km/h Minimum speed	Less than 25 km/h	Less than 25 km/h
Finitian speed		
Control movement	Α	Α
Symmetric control pressure	Increasing	Increasing
Symmetric control travel	Greater than 65 cm	Greater than 65 cm
Pitch stability exiting accelerated flight		
Not carried out because the glider is not equipped w	ith an accelerator	
Pitch stability operating controls during accele	rated flight	
Not carried out because the glider is not equipped w	All an and and an	
Not carried out because the glider is not equipped if	ith an accelerator	
	, an accelerator	
Roll stability and damping		A
	A	Reducing
Roll stability and damping Oscillations	A Reducing	Reducing
Roll stability and damping Oscillations Stability in gentle spirals	Reducing	Reducing
Roll stability and damping Oscillations	Reducing	Reducing
Roll stability and damping Oscillations Stability in gentle spirals Tendency to return to straight flight	A Reducing A Spontaneous exit	Reducing
Roll stability and damping Oscillations Stability in gentle spirals Tendency to return to straight flight Behaviour exiting a fully developed spiral dive	A Reducing A Spontaneous exit	Reducing A Spontaneous exit B
Roll stability and damping Oscillations Stability in gentle spirals Tendency to return to straight flight Behaviour exiting a fully developed spiral dive Initial response of glider (first 180°)	A Reducing A Spontaneous exit A Immediate reduction of rate of turn	Reducing A Spontaneous exit B Immediate reduction of rate of turn
Roll stability and damping Oscillations Stability in gentle spirals Tendency to return to straight flight Behaviour exiting a fully developed spiral dive	A Reducing A Spontaneous exit A Immediate reduction of rate of turn	Reducing A Spontaneous exit B
Roll stability and damping Oscillations Stability in gentle spirals Tendency to return to straight flight Behaviour exiting a fully developed spiral dive Initial response of glider (first 180°) Tendency to return to straight flight	A Reducing A Spontaneous exit A Immediate reduction of rate of turn Spontaneous exit (g force decreasing,	Reducing A Spontaneous exit B Immediate reduction of rate of turn Spontaneous exit (g force
Roll stability and damping Oscillations Stability in gentle spirals Tendency to return to straight flight Behaviour exiting a fully developed spiral dive Initial response of glider (first 180°) Tendency to return to straight flight	A Reducing A Spontaneous exit A Immediate reduction of rate of turn Spontaneous exit (g force decreasing, rate of turn decreasing)	Reducing A Spontaneous exit B Immediate reduction of rate of turn Spontaneous exit (g force decreasing, rate of turn decreasing)
Roll stability and damping Oscillations Tendency to return to straight flight Behaviour exiting a fully developed spiral dive Initial response of glider (first 180°) Tendency to return to straight flight Turn angle to recover normal flight	A Reducing A Spontaneous exit A Immediate reduction of rate of turn Spontaneous exit (g force decreasing, rate of turn decreasing) Less than 720°, spontaneous recovery	Reducing A Spontaneous exit B Immediate reduction of rate of turn Spontaneous exit (g force decreasing, rate of turn decreasing) 720° to 1 080°, spontaneous recovery
Roll stability and damping Oscillations Stability in gentle spirals Tendency to return to straight flight Behaviour exiting a fully developed spiral dive Initial response of glider (first 180°) Tendency to return to straight flight Turn angle to recover normal flight Symmetric front collapse	A Reducing A Spontaneous exit A Immediate reduction of rate of turn Spontaneous exit (g force decreasing, rate of turn decreasing) Less than 720°, spontaneous recovery	Reducing A Spontaneous exit B Immediate reduction of rate of turn Spontaneous exit (g force decreasing, rate of turn decreasing) 720° to 1 080°, spontaneous recovery A
Roll stability and damping Oscillations Stability in gentle spirals Tendency to return to straight flight Behaviour exiting a fully developed spiral dive Initial response of glider (first 180°) Tendency to return to straight flight Turn angle to recover normal flight Symmetric front collapse Entry	A Reducing A Spontaneous exit A Immediate reduction of rate of turn Spontaneous exit (g force decreasing, rate of turn decreasing) Less than 720°, spontaneous recovery	Reducing A Spontaneous exit B Immediate reduction of rate of turn Spontaneous exit (g force decreasing, rate of turn decreasing) 720° to 1 080°, spontaneous recovery

Dive forward angle on exit	Dive forward 0° to 30°	Dive forward 0° to 30°
Change of course		Keeping course
Cascade occurs		No
Folding lines used	no	no
Unaccelerated collapse (at least 50 % chord)	i.	B
	<u>.</u>	
-	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 30° to 60°
Change of course Cascade occurs	1 5	Keeping course
Folding lines used		No
rolang mes used		10
Accelerated collapse (at least 50 % chord)		
Not carried out because the glider is not equipped w	with an accelerator	
Not carried out because the glider is not equipped w		
Exiting deep stall (parachutal stall)	A	A
Deep stall achieved		Yes
-	r 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
High angle of attack recovery	Α	Α
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Cascade occurs		No
Recovery from a developed full stall	Α	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
	1	1
Small asymmetric collapse	<u> </u> A	<b>A</b>
Change of course until re-inflation		Less than 90°
Maximum dive forward or roll angle	-	Dive or roll angle 0° to 15°
	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	No
Cascade occurs	No	No
Folding lines used	no	no
large sourcestric colleges	в	в
Large asymmetric collapse	<u>i</u>	i
Change of course until re-inflation		90° to 180°
Maximum dive forward or roll angle	Spontaneous re-inflation	Dive or roll angle 15° to 45° Spontaneous re-inflation
Total change of course		Less than 360°
-	No (or only a small number of collapsed	No (or only a small number of
	cells with a spontaneous re inflation)	collapsed cells with a spontaneous
		re inflation)
Twist occurs		No
Cascade occurs		No
Folding lines used		no
Small asymmetric collapse accelerated		
Not carried out because the glider is not equipped w	ith an accelerator	
····		
Large asymmetric collapse accelerated		
Not carried out because the glider is not equipped w	ith an accelerator	
	-	
Directional control with a maintained	A	A
asymmetric collapse	17	<u>[]</u>
Able to keep course		Yes
180° turn away from the collapsed side possible in 10 s		Yes
possible in 10 s Amount of control range between turn and		More than 50 % of the symmetric
stall or spin		control travel
Trim speed spin tendency	A	A
Spin occurs	s No	No
Low speed spin tendency	Α	Α

Spin occ	urs No	No
Recovery from a developed spin	A	A
Spin rotation angle after relea	ase Stops spinning in less than 90°	Stops spinning in less than 90°
Cascade occ	urs No	No
<u>B-line stall</u>	A	A
Change of course before relea	<b>ase</b> Changing course less than 45°	Changing course less than 45°
Behaviour before relea	ase Remains stable with straight span	Remains stable with straight span
Recov	ery Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on e	exit Dive forward 0° to 30°	Dive forward 0° to 30°
Cascade occ	urs No	No
<u>Big ears</u>	A	A
Entry proced	ure Standard technique	Dedicated controls
Behaviour during big e	ars Stable flight	Stable flight
Recov	ery Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on e	exit Dive forward 0° to 30°	Dive forward 0° to 30°
Big ears in accelerated flight		
Not carried out because the glider is not equippe	d with an accelerator	
Alternative means of directional control	A	A
180° turn achievable in 2	<b>0 s</b> Yes	Yes
Stall or spin occ	urs No	No
Any other flight procedure and/or configura	tion described in the user's manual	

No other flight procedure or configuration described in the user's manual

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## DHV TESTREPORT LTF

**UP K2 4 SM** 

Type designation UP K2 4 SM Type test reference no DHV GS-01-2591-20 Holder of certification UP International GmbH Manufacturer UP International GmbH Classification B Winch towing Yes Number of seats min / max 1 / 2 Accelerator No Trimmers Yes **BEHAVIOUR AT MIN WEIGHT IN BEHAVIOUR AT MAX** FLIGHT (110KG) WEIGHT IN FLIGHT (200KG) **Test pilots** Sebastian Mackrodt Josef Bauer No release No release A Inflation/take-off Α Rising behaviour Smooth, easy and constant rising Smooth, easy and constant rising Special take off technique required No No Landing Α Α Special landing technique required No No Speeds in straight flight A Α Trim speed more than 30 km/h Yes Yes Speed range using the controls larger than 10 Yes Yes km/h Minimum speed Less than 25 km/h Less than 25 km/h Control movement A Α Symmetric control pressure Increasing Increasing Symmetric control travel Greater than 65 cm Greater than 65 cm Pitch stability exiting accelerated flight Not carried out because the glider is not equipped with an accelerator Pitch stability operating controls during accelerated flight Not carried out because the glider is not equipped with an accelerator Roll stability and damping A 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 Immediate reduction of rate of turn Spontaneous exit (g force Tendency to return to straight flight Spontaneous exit (g force decreasing, rate of turn decreasing) decreasing, rate of turn decreasing) Turn angle to recover normal flight Less than 720°, spontaneous recovery Less than 720°, spontaneous recoverv Symmetric front collapse B Α Entry Rocking back less than 45° Rocking back less than 45° **Recovery** Spontaneous in 3 s to 5 s Spontaneous in less than 3 s

Dive forward angle on exit		Dive forward 0° to 30°
Change of course		Keeping course
Cascade occurs		No
Folding lines used	l no	no
Unaccelerated collapse (at least 50 % chord)	A	в
	r 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 30° to 60°
Change of course		Keeping course
Cascade occurs	s No	No
Folding lines used	l no	no
Accelerated collapse (at least 50 % chord)		
Not carried out because the glider is not equipped w	ith an accelerator	
	1	1
Exiting deep stall (parachutal stall)	<u> </u> A	В
Deep stall achieved		Yes
	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on exit		Dive forward 30° to 60°
Change of course Cascade occurs	Changing course less than 45°	Changing course less than 45°
Cascade occurs		No
High angle of attack recovery	A	A
Recovery	Spontaneous in less than 3 s	Spontaneous in less than 3 s
Cascade occurs		No
Recovery from a developed full stall	Α	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
te u se u	1.	·-
Small asymmetric collapse	¦A	A
Change of course until re-inflation		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°
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	no	no
Large asymmetric collapse	в	в
L	÷	i
Change of course until re-inflation		90° to 180°
Maximum dive forward or roll angle	· Spontaneous re-inflation	Dive or roll angle 15° to 45° Spontaneous re-inflation
Total change of course		Less than 360°
-	No (or only a small number of collapsed	No (or only a small number of
	cells with a spontaneous re inflation)	collapsed cells with a spontaneous
	- N -	re inflation)
Twist occurs		No
Cascade occurs Folding lines used		No
Small asymmetric collapse accelerated		
Not carried out because the glider is not equipped w	/ith an accelerator	
Large asymmetric collapse accelerated		
Not carried out because the glider is not equipped w	ith an accelerator	
Directional control with a maintained	A	A
asymmetric collapse	i	<u>i</u>
Able to keep course		Yes
180° turn away from the collapsed side possible in 10 s		Yes
Amount of control range between turn and stall or spir	More than 50 % of the symmetric control	More than 50 % of the symmetric control travel
Trim speed spin tendency	Α	A
Spin occurs	s No	No
	1	1
Low speed spin tendency	Α	Α

Spin occu	<b>irs</b> No	No
Recovery from a developed spin	A	A
Spin rotation angle after relea	se Stops spinning in less than 90°	Stops spinning in less than 90°
Cascade occu	<b>irs</b> No	No
<u>B-line stall</u>	A	A
Change of course before relea	<b>se</b> Changing course less than 45°	Changing course less than 45°
Behaviour before relea	se Remains stable with straight span	Remains stable with straight span
Recove	ery Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on e	xit Dive forward 0° to 30°	Dive forward 0° to 30°
Cascade occu	irs No	No
<u>Big ears</u>	A	A
Entry procedu	ire Dedicated controls	Standard technique
Behaviour during big ea	<b>ars</b> Stable flight	Stable flight
Recove	ery Spontaneous in less than 3 s	Spontaneous in less than 3 s
Dive forward angle on e	xit Dive forward 0° to 30°	Dive forward 0° to 30°
Big ears in accelerated flight		
Not carried out because the glider is not equipped	d with an accelerator	
Alternative means of directional control	A	A
180° turn achievable in 2	<b>D s</b> Yes	Yes
Stall or spin occu	<b>irs</b> No	No
Any other flight procedure and/or configura	tion described in the user's manual	

No other flight procedure or configuration described in the user's manual