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test laboratory for paragliders, paraglider harnesses and paraglider reserve parachutes



Flight test report: EN 926-2:2013+A1:2021 and NfL 2024-2-785

Manufacturer	Dudek Paragliders -	POWAIR	Certification numb				
Address	ul. Centralna 2U 86-031 Osielsko Poland		Flight test		02.04.2025		
Glider model	Halo 23		Classification		Α		
Serial number	P-271321		Representative		None		
Trimmer	no		Place of test		Villeneuve		
Folding lines used	no						
Test pilot		Light pilot under Air Turquoise supervision			Claude Thurnheer		
Harness		Woody Valley srl Wani Light 2 S 41			Supair s.a.s. ALTIRANDO M 43		
Harness to risers d	istance [cm]						
Distance between r	isers [cm]	40	40		44		
Total weight in fligh	Total weight in flight [kg]		55		80		
1. Inflation/Take-off		Α					
Rising behaviour		Smooth, easy and cor	nstant rising	A	Smooth, easy and constant rising	Α	
Special take off technique	required	No	,	Α	No	Α	
2. Landing		Α					
Special landing technique	required	No	,	A	No	Α	
3. Speed in straight flight Trim speed more than 30	3. Speed in straight flight Trim speed more than 30 km/h		,	A	Yes	Α	
	Speed range using the controls larger than 10 km/h		,	A	Yes	А	
Minimum speed			,	A	Less than 25 km/h	Α	
4. Control movement		A					
	to 80 ka	^					
Max. weight in flight up to 80 kg Symmetric control pressure / travel		Increasing / greater th	nan 55 cm	Α	Increasing / greater than 55 cm	Α	
Max. weight in flight 80	kg to 100 kg						
Symmetric control pressu	re / travel	not available	(0	not available	0	
Max. weight in flight gre	_						
Symmetric control pressure / travel		not available	(0	not available	0	
5. Pitch stability exiting accelerated flight		A	n 200	٨	Dive ferward lose than 20°	۸	
Dive forward angle on exi	l	Dive forward less than	11 30	A	Dive forward less than 30°	Α	
Collapse occurs		No	/	Α	No	Α	
6. Pitch stability operati accelerated flight	ng controls during	Α					
Collapse occurs		No	,	Α	No	Α	
7. Roll stability and damping		Α					
Oscillations		Reducing	/	A	Reducing	Α	
8. Stability in gentle spirals		A					
Tendency to return to stra	ight flight	Spontaneous exit	,	A	Spontaneous exit	Α	

9. Behaviour exiting a fully 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 straight flight	Spontaneous exit (g force decreasing, rate of turn decreasing)	Α	Spontaneous exit (g force decreasing, rate of turn decreasing)	ı A
Turn angle to recover normal flight	Less than 720°, spontaneous recovery	Α	Less than 720°, spontaneous recovery	Α
10. Symmetric front collapse Approximately 30 % chord	Α			
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	Α	No	Α
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 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	Α	No	Α
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	Α	No	Α
11. Exiting deep stall (parachutal stall)	A Yes	٨	Yes	٨
Deep stall achieved	Spontaneous in less than 3 s		Spontaneous in less than 3 s	A A
Recovery	Dive forward 0° to 30°	A		A
Dive forward angle on exit	Changing course less than 45°	A		A
Change of course Cascade occurs	No		No No	A
	A	,,		^`
12. High angle of attack recovery 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 Dive forward angle on exit	A 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 Small asymmetric collapse	Α			
Change of course until re-inflation / Maximum dive forward or roll angle	Less than 90° / Dive or roll angle 0° to 15°	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	Α	No	Α
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°	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	Α	No	Α
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 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	Α	No	Α
Large 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	Α	No	Α
Able to keep course Yes A Yes A 180" turn awwy from the collapsed side possible in 10 a Yes A Yes A Amount of control range between turn and stall or spin Mare than 50 % of the symmetric control travel A No. A No. A 16. Trim speed spin tendency Spin occurs A A A No. A No. A 17. Low speed spin tendency Spin rodation angle after release A A No. A No. A 18. Recovery from a developed spin Spin rodation angle after release A A No. A No. A Cascade occurs No. A No. A No. A 15. B-line stall A Change of course before release Change of course less than 45° A Decourse of course less than 45° A <td></td> <td>A</td> <td></td> <td></td> <td></td>		A			
Amount of control range between turn and stall or spin 16. Trim speed spin tendency No No A No A No A 17. Low speed spin tendency No No A No No A No A 17. Low speed spin tendency Spin occurs No No A No A No A 18. Recovery from a developed spin A Spin rotation angle after release No No A No A No A No A 19. B-line stall Change of course before release Renaise stable with straight spen Behaviour before release Renaise stable with straight spen Dive forward angle on exit Div		Yes	Α	Yes	Α
16. Frim speed spin tendency Spin occurs No No A	180° turn away from the collapsed side possible in 10 s	Yes	Α	Yes	Α
Spin occurs No A No A No A No A No A No A 17. Low speed spin tendency Spin occurs No A No A No A No A No A 18. Recovery from a developed spin A No A 18. Recovery from a developed spin A No A 18. Recovery from a developed spin A No A No A No A No A 18. Recovery from a developed spin A No A N	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
Spin occurs No No A No A No A No A No A Spin occurs No No A Spin occurs No No A Spin occurs No A No A No A No A Spin occurs N	16. Trim speed spin tendency	A			
Spin occurs No A No A No A 18. Recovery from a developed spin Spin rotation angle after release Stops spinning in less than 90° A No A 19. B-line stall A Change of course before release Change of course before release Changing course less than 45° A Changing course less than 45° A Changing course less than 45° A Behaviour before release Recovery Spintineous in less than 3 s A Dive forward of to 30° A No A N	Spin occurs	No	Α	No	Α
Spin rotation angle after release Stops spinning in less than 90" A Stops			Α	No	Α
Cascade occurs No A 19. B-line stall A 19. Dive forward or to 30° A 19. B-line stall A 19. B-li	18. Recovery from a developed spin	A			
A Change of course before release Remains stable with straight span A Recovery Spontaneous in less than 3 s A Spontaneous in less than 3 s A Spontaneous in less than 3 s A Dive forward or lo 30° A Dedicated controls A Dedicated controls A Dedicated controls A Stable flight A Stable flight A Dedicated controls A Dive forward or lo 30° A Dedicated controls A Stable flight	Spin rotation angle after release	Stops spinning in less than 90°	Α	Stops spinning in less than 90°	Α
Change of course before release Change of course before release Remains stable with straight span 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 Dive forward 0° to 30° A Dedicated controls A Dedicated controls A Dedicated controls A Stable flight A Stable flight A Dive forward 0° to 30° A Dedicated controls A Dedicated controls A Dive forward on to 30° A Dive forward on to 30° A Dive forward on to 30° A Dive forward on the straight span A Stable flight A Dive forward on to 30° A Dedicated controls A Dedicated controls A Dedicated controls A Dive forward on to 30° A Dive forward on to 30° A Dive forward on the straight span A Dive forward on to 30° A Dedicated controls A De	Cascade occurs	No	Α	No	Α
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 Spontaneous in less than 3 s A Dive forward 0° to 30° A Dedicated controls A Dedicated controls A Dedicated controls A Stable flight A Stable flight A Dive forward 0° to 30° A Di				0	
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Dive forward angle on exit Dive forward 0° to 30° A Dive forward 0° to 30° A No	Behaviour before release	Remains stable with straight span	Α	Remains stable with straight span	Α
Cascade occurs No A 20. Big ears Entry procedure Dedicated controls A Dedicated controls A Dedicated controls A Dedicated controls A Stable flight A Stable flight A Stable flight A Dive forward angle on exit Dive forward 0° to 30° Dedicated controls A Dive forward 0° to 30° Dedicated controls A Dive forward 0° to 30° A Dive forward 0° to 30° A Dive forward 0° to 30° A Dedicated controls A Dive forward 0° to 30° A Dedicated controls A Dedicated controls A Stable flight A	Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
20. Big ears Entry procedure Dedicated controls A Dedicated controls A Stable flight A Dive forward or to 30° A Dedicated controls A Stable flight A Stable flight A Stable flight A Dive forward or to 30° A D	Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Entry procedure Dedicated controls A Dedicated controls A Stable flight A Dive forward on the stable flight A Dive forward on the stable flight A Dedicated controls A	Cascade occurs	No	Α	No	Α
Behaviour during big ears Stable flight A Stable flight A Spontaneous in less than 3 s A Spontaneous in less than 3 s A Dive forward 0° to 30° A Dedicated controls A Dedicated controls A Dedicated controls A Dive forward 0° to 30° A Dive forward	_				
Recovery Spontaneous in less than 3 s A Spontaneous in less than 3 s A Dive forward or to 30° A Dive forward 0° to 30° A Dive forward 0° to 30° A Dive forward 0° to 30° A Dedicated controls A Dedicated controls A Dedicated controls A Stable flight A Stable flight A Stable flight A Spontaneous in less than 3 s A Dive forward 0° to 30° A Dive for	Entry procedure	Dedicated controls	Α	Dedicated controls	Α
Dive forward angle on exit Dive forward 0° to 30° A Dive forward 0° to 30° A Dive forward 0° to 30° A Dedicated controls A Stable flight A Stable flight A Stable flight A Dive forward on to 30° A D	Behaviour during big ears	Stable flight	Α	Stable flight	Α
21. Big ears in accelerated flight Entry procedure Dedicated controls A Stable flight A Stable flight A Spontaneous in less than 3 s A Dive forward angle on exit Dive forward 0° to 30° A Dive forward angle on exit Dive forward 0° to 30° A Stable flight A Dedicated controls A Dive forward 0° to 30° A Dive	Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
Entry procedure Dedicated controls A Dedicated controls A Stable flight A Sta	Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
Behaviour during big ears Stable flight A Stable flight A Stable flight A Spontaneous in less than 3 s A Spontaneous in less than 3 s A Spontaneous in less than 3 s A Dive forward angle on exit Dive forward on to 30 s A Stable flight A Pres A Pres A Pres A Pres A No A No A Procedure suitable for novice pilots Not available O not available O not available O not available O not available					
Recovery Spontaneous in less than 3 s A Spontaneous in less than 3 s A Dive forward 0° to 30° A Stable flight A Stabl	Entry procedure	Dedicated controls	Α	Dedicated controls	Α
Dive forward angle on exit Dive forward 0° to 30° A Dive forward 0° to 30° A Dive forward 0° to 30° A Behaviour immediately after releasing the accelerator while maintaining big ears 22. Alternative means of directional control 180° turn achievable in 20 s Yes A Yes A Stable flight A Stable flight A Stable flight A Yes A Pes A Pes A Pes A Pes Procedure works as described No A No A No A No A No A No Procedure works as described Not available O not available O not available O not available	Behaviour during big ears	Stable flight	Α	Stable flight	Α
Behaviour immediately after releasing the accelerator while maintaining big ears 22. Alternative means of directional control 180° turn achievable in 20 s No A Stall or spin occurs No A No A No A A Stable flight A Yes A A Yes A Procedure works as described Not available	Recovery	Spontaneous in less than 3 s	Α	Spontaneous in less than 3 s	Α
while maintaining big ears 22. Alternative means of directional control A 180° turn achievable in 20 s Yes A Stall or spin occurs No A No A 23. Any other flight procedure and/or configuration described in the user's manual Procedure works as described not available 0 not available 0 not available 0 not available 0	Dive forward angle on exit	Dive forward 0° to 30°	Α	Dive forward 0° to 30°	Α
180° turn achievable in 20 s Yes A Yes A Stall or spin occurs No No A No A 23. Any other flight procedure and/or configuration described in the user's manual Procedure works as described not available 0		Stable flight	Α	Stable flight	Α
Stall or spin occurs No A No A No A 23. Any other flight procedure and/or configuration described in the user's manual Procedure works as described not available 0 not available 0 not available 0 not available 0			^	Voc	٨
23. Any other flight procedure and/or configuration described in the user's manual Procedure works as described not available 0 not available 0 not available 0 Procedure suitable for novice pilots not available 0 not available 0	180° turn achievable in 20 s	1 to	А	169	А
configuration described in the user's manual Procedure works as described not available 0 not available 0 Procedure suitable for novice pilots not available 0 not available 0 O not available 0	Stall or spin occurs	No	Α	No	Α
Procedure suitable for novice pilots not available 0 not available 0	23. Any other flight procedure and/or configuration described in the user's manual	0			
Troccadio callabio for horizo piloto	Procedure works as described	not available	0	not available	0
Cascade occurs 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