

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

UP MANA 2 21

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|---------------------------|-----------------------|
| Type designation | UP Mana 2 21 |
| Type test reference no | DHV GS-01-2754-23 |
| Holder of certification | UP International GmbH |
| Manufacturer | UP International GmbH |
| Classification | A |
| Winch towing | Yes |
| Number of seats min / max | 1 / 1 |
| Accelerator | Yes |
| Trimmers | No |



BEHAVIOUR AT MIN WEIGHT IN FLIGHT (55KG) BEHAVIOUR AT MAX WEIGHT IN FLIGHT (85KG)

Test pilots



Juliette Schönsee



Harald Buntz

Expert Harald Buntz

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| Inflation/take-off | No release | No release |
| 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 | 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 60 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 | No |
| Roll stability and damping | A | A |
| Oscillations | Reducing | 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, rate of turn decreasing) | 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 | 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 | 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 | No |
| Folding lines used | no | no |
| Accelerated collapse (at least 50 % chord) | 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 | 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 |
| High angle of attack recovery | 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 | A |
| Dive forward angle on exit | Dive forward 0° to 30° | Dive forward 0° to 30° |
| 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 |
| 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 0° to 15° |
| 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 collapsed cells with a spontaneous re inflation) |
| Twist occurs | No | No |
| Cascade occurs | No | No |
| Folding lines used | no | no |
| Large 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 0° to 15° | 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 collapsed cells with a spontaneous re inflation) |
| Twist occurs | No | No |
| Cascade occurs | No | No |
| Folding lines used | 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 0° to 15° | 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 collapsed cells with a spontaneous re inflation) |
| Twist occurs | No | No |
| Cascade occurs | No | No |
| Folding lines used | no | no |
| Large 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° | 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 collapsed 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 | 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 travel | 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 3 s to 5 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 | No other flight procedure or configuration described in the user's manual |