



## Flight test report: EN

|                |  |                       |              |
|----------------|--|-----------------------|--------------|
| Manufacturer   | <b>MCC Aviation SA</b>                       | Certification number  | PG_0681.2013 |
| Address        | La Tuilière<br>1091 Grandvaux<br>Switzerland | Date of flight test   | 08. 10. 2013 |
| Representative | None   | Place of test         | Villeneuve   |
| Glider model   | <b>Beluga 3-38</b>                           | <b>Classification</b> | <b>B</b>     |
| Trimmer        | yes: opened                                  |                       |              |

|                                    |                            |                    |
|------------------------------------|----------------------------|--------------------|
| <b>Test pilot</b>                  | Thurnheer Claude           | Zoller Alain       |
| <b>Harness</b>                     | Niviuk Gliders - Hamak 2 M | Advance - Bi Pro 2 |
| <b>Total weight in flight (kg)</b> | 100                        | 200                |

|  |   |   |   |   |
|--|---|---|---|---|
| <b>1. Inflation/Take-off</b>   | <b>A</b>                                |   |   |   |
| Rising behaviour   | Smooth, easy and constant rising        | A | Smooth, easy and constant rising        | A |
| Special take off technique required                                    | No                                      | A | No                                      | A |
| <b>2. Landing</b>  | <b>A</b>                                |   |   |   |
| Special landing technique required                                     | No                                      | A | No                                      | A |
| <b>3. Speed in straight flight</b>                                     | <b>B</b>                                |   |   |   |
| Trim speed more than 30 km/h   | Yes                                     | A | Yes                                     | A |
| Speed range using the controls larger than 10 km/h                     | Yes                                     | A | Yes                                     | A |
| Minimum speed  | Less than 25 km/h                       | A | 25 km/h to 30 km/h                      | B |
| <b>4. Control movement</b>   | <b>A</b>                                |   |   |   |
| <i>Max. weight in flight up to 80 kg</i>                               |   |   |   |   |
| Symmetric control pressure / travel                                    | not available                           | 0 | not available                           | 0 |
| <i>Max. weight in flight 80 kg to 100 kg</i>                           |   |   |   |   |
| Symmetric control pressure / travel                                    | not available                           | 0 | not available                           | 0 |
| <i>Max. weight in flight greater than 100 kg</i>                       |   |   |   |   |
| Symmetric control pressure / travel                                    | Increasing / greater than 65 cm         | A | Increasing / greater than 65 cm         | A |
| <b>5. Pitch stability exiting accelerated flight</b>                   | <b>0</b>                                |   |   |   |
| Dive forward angle on exit   | not available                           | 0 | not available                           | 0 |
| Collapse occurs  | not available                           | 0 | not available                           | 0 |
| <b>6. Pitch stability operating controls during accelerated flight</b> | <b>0</b>                                |   |   |   |
| Collapse occurs  | not available                           | 0 | not available                           | 0 |
| <b>7. Roll stability and damping</b>                                   | <b>A</b>                                |   |   |   |
| Oscillations   | Reducing                                | A | Reducing                                | A |
| <b>8. Stability in gentle spirals</b>                                  | <b>A</b>                                |   |   |   |
| Tendency to return to straight flight                                  | Spontaneous exit                        | A | Spontaneous exit                        | A |
| <b>9. Behaviour in a steeply banked turn</b>                           | <b>B</b>                                |   |   |   |
| Sink rate after two turns  | 12 m/s to 14 m/s                        | A | More than 14 m/s                        | B |
| <b>10. Symmetric front collapse</b>                                    | <b>A</b>                                |   |   |   |
| Entry  | Rocking back less than 45°              | A | Rocking back less than 45°              | A |
| Recovery   | Spontaneous in less than 3 s            | A | Spontaneous in less than 3 s            | A |
| Dive forward angle on exit / Change of course                          | Dive forward 0° to 30° / Keeping course | A | Dive forward 0° to 30° / Keeping course | A |
| Cascade occurs   | No                                      | A | No                                      | A |
| <i>With accelerator</i>  |   |   |   |   |
| Entry  | not available                           | 0 | not available                           | 0 |
| Recovery   | not available                           | 0 | not available                           | 0 |

|  |  |   |  |   |
|--|--|---|--|---|
| Dive forward angle on exit / Change of course                            | not available                                  | 0 | not available                                  | 0 |
| Cascade occurs   | not available                                  | 0 | not available                                  | 0 |
| <b>11. Exiting deep stall (parachutal stall)</b>                         | <b>A</b>                                       |   |  |   |
| Deep stall achieved  | Yes  | A | Yes  | A |
| Recovery   | Spontaneous in less than 3 s                   | 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 |
| Change of course   | Changing course less than 45°                  | A | Changing course less than 45°                  | A |
| Cascade occurs   | No   | A | No   | A |
| <b>12. High angle of attack recovery</b>                                 | <b>A</b>                                       |   |  |   |
| Recovery   | Spontaneous in less than 3 s                   | A | Spontaneous in less than 3 s                   | A |
| Cascade occurs   | No   | A | No   | A |
| <b>13. Recovery from a developed full stall</b>                          | <b>B</b>                                       |   |  |   |
| Dive forward angle on exit   | Dive forward 0° to 30°                         | A | Dive forward 30° to 60°                        | B |
| Collapse   | No collapse                                    | A | No collapse                                    | A |
| Cascade occurs (other than collapses)                                    | No   | A | No   | A |
| Rocking back   | Less than 45°                                  | A | Less than 45°                                  | A |
| Line tension   | Most lines tight                               | A | Most lines tight                               | A |
| <b>14. Asymmetric collapse</b>   | <b>B</b>                                       |   |  |   |
| <i>With 50% collapse</i>   |  |   |  |   |
| Change of course until re-inflation / Maximum dive forward or roll angle | Less than 90° / Dive or roll angle 15° to 45°  | A | Less than 90° / Dive or roll angle 0° to 15°   | A |
| Re-inflation behaviour   | Spontaneous re-inflation                       | A | Spontaneous re-inflation                       | A |
| Total change of course   | Less than 360°                                 | A | Less than 360°                                 | A |
| Collapse on the opposite side occurs                                     | No   | A | No   | A |
| Twist occurs   | No   | A | No   | A |
| Cascade occurs   | No   | A | No   | A |
| <i>With 75% collapse</i>   |  |   |  |   |
| Change of course until re-inflation / Maximum dive forward or roll angle | 90° to 180° / Dive or roll angle 15° to 45°    | B | 90° to 180° / Dive or roll angle 15° to 45°    | B |
| Re-inflation behaviour   | Spontaneous re-inflation                       | A | Spontaneous re-inflation                       | A |
| Total change of course   | Less than 360°                                 | A | Less than 360°                                 | A |
| Collapse on the opposite side occurs                                     | No   | A | No   | A |
| Twist occurs   | No   | A | No   | A |
| Cascade occurs   | No   | A | No   | A |
| <i>With 50% collapse and accelerator</i>                                 |  |   |  |   |
| Change of course until re-inflation / Maximum dive forward or roll angle | not available                                  | 0 | not available                                  | 0 |
| Re-inflation behaviour   | not available                                  | 0 | not available                                  | 0 |
| Total change of course   | not available                                  | 0 | not available                                  | 0 |
| Collapse on the opposite side occurs                                     | not available                                  | 0 | not available                                  | 0 |
| Twist occurs   | not available                                  | 0 | not available                                  | 0 |
| Cascade occurs   | not available                                  | 0 | not available                                  | 0 |
| <i>With 75% collapse and accelerator</i>                                 |  |   |  |   |
| Change of course until re-inflation / Maximum dive forward or roll angle | not available                                  | 0 | not available                                  | 0 |
| Re-inflation behaviour   | not available                                  | 0 | not available                                  | 0 |
| Total change of course   | not available                                  | 0 | not available                                  | 0 |
| Collapse on the opposite side occurs                                     | not available                                  | 0 | not available                                  | 0 |
| Twist occurs   | not available                                  | 0 | not available                                  | 0 |
| Cascade occurs   | not available                                  | 0 | not available                                  | 0 |
| <b>15. Directional control with a maintained asymmetric collapse</b>     | <b>A</b>                                       |   |  |   |
| Able to keep course  | Yes  | A | Yes  | A |
| 180° turn away from the collapsed side possible in 10 s                  | Yes  | A | Yes  | A |
| Amount of control range between turn and stall or spin                   | More than 50 % of the symmetric control travel | A | More than 50 % of the symmetric control travel | A |

|   |                                      |   |                                      |   |
|---|--------------------------------------|---|--------------------------------------|---|
| <b>16. Trim speed spin tendency</b>   | <b>A</b>                             |   |                                      |   |
| Spin occurs   | No                                   | A | No                                   | A |
| <b>17. Low speed spin tendency</b>  | <b>A</b>                             |   |                                      |   |
| Spin occurs   | No                                   | A | No                                   | A |
| <b>18. Recovery from a developed spin</b>   | <b>A</b>                             |   |                                      |   |
| Spin rotation angle after release   | Stops spinning in less than 90°      | A | Stops spinning in less than 90°      | A |
| Cascade occurs  | No                                   | A | No                                   | A |
| <b>19. B-line stall</b>   | <b>A</b>                             |   |                                      |   |
| Change of course before release   | Changing course less than 45°        | A | Changing course less than 45°        | A |
| 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 |
| Dive forward angle on exit  | Dive forward 0° to 30°               | A | Dive forward 0° to 30°               | A |
| Cascade occurs  | No                                   | A | No                                   | A |
| <b>20. Big ears</b>   | <b>A</b>                             |   |                                      |   |
| Entry procedure   | Dedicated controls                   | A | Dedicated controls                   | A |
| Behaviour during big ears   | Stable flight                        | A | Stable flight                        | A |
| Recovery  | Spontaneous in less than 3 s         | 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 |
| <b>21. Big ears in accelerated flight</b>   | <b>0</b>                             |   |                                      |   |
| Entry procedure   | not available                        | 0 | not available                        | 0 |
| Behaviour during big ears   | not available                        | 0 | not available                        | 0 |
| Recovery  | not available                        | 0 | not available                        | 0 |
| Dive forward angle on exit  | not available                        | 0 | not available                        | 0 |
| Behaviour immediately after releasing the accelerator while maintaining big ears          | not available                        | 0 | not available                        | 0 |
| <b>22. Behaviour exiting a steep spiral</b>   | <b>A</b>                             |   |                                      |   |
| Tendency to return to straight flight   | Spontaneous exit                     | A | Spontaneous exit                     | A |
| Turn angle to recover normal flight   | Less than 720°, spontaneous recovery | A | Less than 720°, spontaneous recovery | A |
| Sink rate when evaluating spiral stability [m/s]  | 17                                   |   | 20                                   |   |
| <b>23. Alternative means of directional control</b>                                       | <b>A</b>                             |   |                                      |   |
| 180° turn achievable in 20 s  | Yes                                  | A | Yes                                  | A |
| Stall or spin occurs  | No                                   | A | No                                   | A |
| <b>24. Any other flight procedure and/or configuration described in the user's manual</b> | <b>0</b>                             |   |                                      |   |
| Procedure works as described  | 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 |
| <b>25. Comments of test pilot</b>   |                                      |   |                                      |   |
| Comments  |                                      |   |                                      |   |