

(Proposed) Annex X1 to S7b Chapter 12

Structural strength of the paraglider model

This document outlines the testing required to be undertaken for an uncertified (non-homologated) PG to be entered in FAI Category 1 Championships, making it 'competition class'. The structural strength of uncertified gliders will be confirmed by requiring them to pass the following 4 tests:

According to EN926-1:

- 1) Shock load test to 800kg
- 2) Sustained load test to 800kg

Plus:

- 3) Line set strength test using load calculation of the line sets of 23G with new, sewn and/or spliced lines
- 4) Individual line strength tests of all lines to 40daN minimum

Shock & Sustained Load tests

Physical shock load and sustained load tests shall be undertaken for each different type or model of glider required to be entered as a 'competition class' glider. The Medium size of each model shall be load tested using the standard procedures specified by EN 926-1. (The Medium size (100kg take off weight, roughly) is the size that is most used in competitions.)

Line tests

The load calculation for testing the breaking strength of the line sets shall be applied to each size of the glider, at the maximum flying weight of that glider size.

The line breaking strengths for the load calculation will be based on the tests of an independent testing laboratory. The paraglider manufacturer will provide samples of the lines to the testing laboratory with the sewn and/or spliced terminations.

The testing laboratory shall test at least 3 samples of each type of line and will take the average load achieved from those 3 samples.

The load calculation shall be based on a load of 23 x the max flying weight of the glider. This factor is to be applied to the lower lines of the glider. At each level, above every cascade of lines, the calculated total strength has to be the same (within 5%) or stronger than the level below it. If one level is weaker (max. 5%), the next level refers to the stronger one below. It is permitted only to increase the strength of the lines compared to the shock and sustained load tests in order to satisfy the line load calculation.

The manufacturer will decide the load distribution between the different lines according to his own calculation. The line load calculation will be applied to all load bearing lines of the glider. This includes the stabilo, but not the brake lines. The manufacturer provides a line scheme with calculations.

Documentation/Certification

The Test House must complete and sign a 'Competition Class' Test Certificate (below) and supply copies to the Manufacturer. The Manufacturer must sign the declaration and forward the document to CIVL to register the glider, 60 days before the start of the FAI Cat 1 Championship.

After checking conformity, the complete line scheme for each model tested, with line sample sheets (with loops) should be signed and dated and sent to the CIVL. Test Houses may retain their own line sheets for reference which may be requested later by CIVL officials or FAI Category 1 Championship organisers.

Example of possible line sheme with calculation for one cascade:

Lower line A1								horizontal total
Lower line ref	8000U-360							
braking strength	360							360
total strength of line attached to	390							
Lower Medium Line ref	8000U-160					8000U-230		
braking strength	160					230		390
total strength of line attached to	180					260		
Upper medium line ref	8000U-90			8000U-90			none	
braking strength	90			90				180
total strength of line attached to	100			100				
Upper line ref	8000U-50	8000U-50		8000U-50	8000U-50	8000U-130	8000U-130	
braking strength	50	50		50	50	130	130	460

(Proposed) **Annex X1 to Section 7b Chapter 12.1**
Competition Class Structural Strength Test Certificate

Manufacturer:
Glider Type/Model:
Test date:
etc

Confirmation of the testing body:

1. We confirm that one size of the glider model noted above has been Shock load tested to 800kg according to EN926-1

Test results:

2. We confirm that the M size of the glider model noted above has been Sustained load tested to 800kg according to EN926-1

Test results:

3. We confirm that complete line set schemes with sample line sheets have been received for each size from the manufacturer.

4. We confirm that line set scheme with load calculation according to the rules „line tests“ (above) has been completed

5. We confirm that line breaking strength testing to 40daN of each line type has been completed.

Test House:
Test Expert:
Stamp and Signature:

Confirmation of the manufacturer

We confirm that the glider Type designation has been built in accordance with the line specifications given above. We, the manufacturers, are not aware of any circumstances that might adversely affect the airworthiness of this glider.

For the Manufacturer (name):

Date

Stamp and Signature