

F3 RES thermal gliders

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1. General provisions

a) F3 RES is a class for radio-controlled thermal soaring gliders. The models feature max. two (2) meter span and are primarily of wooden construction. The models are controlled by rudder, elevator and spoiler(s). For launching a rubber bungee and towline is used. Due to the restrictions for construction and equipment the participation to contests shall be possible with low cost and average skills. The introduction into RC tournaments should be achievable for everybody at all ages. One key aspect is to inspire young modellers and integrate them into the contesters community. In this sense the rules shall be understood and interpreted.

b) Definition of a radio controlled glider:

A model aircraft which is not provided with a propulsion device and in which lift is generated by aerodynamic forces acting on surfaces remaining fixed. The model must be controlled by the competitor on the ground using radio control.

c) In competition at least four (4) qualifying rounds shall be flown. For each qualifying round, participants shall be divided into flight groups. The results of each flight group shall be normalized to arrive at comparable scores between the flight groups. The highest score within each flight group will be assigned 1000 points and the remaining scores within that group shall be proportional to each participant's raw flight score relative to the best raw flight score within that group. The group size in the "Fly-Off" shall be the same as the group size in the preliminary rounds. Participants flying with the highest total normalized scores from the preliminary round will compete in a "fly-off" (minimum 2 rounds) to determine the final classification.

d) The competitor may use three (3) models in the contest. The competitor may change the models at any time, but within a round only if the model that was used at first is placed within a radius of 15 meters of the assigned landing spot.

e) The competitor may use up to three (3) helpers. These are to assist him in launching and retrieving the model, informing him of weather conditions and flight time and to manage the hi-start. At least

one helper shall constantly ensure that the pilot's assigned hi-start does not interfere with anyone else's assigned hi-start. This requires that his pilot's hi-start be immediately returned to its assigned position.

f) In crosswind conditions the Contest Director may determine that the contestant who is farthest downwind begin with the start so that hi-starts do not interfere with each other during launching.

g) The organizer should have official scorekeeper / timekeeper available. If this is not the case, the pilot's helper will keep time, and the organizer will regularly sample the flight times. Deviations of more than three (3) Seconds in favor of the participant shall lead to a zero score flight.

h) The landing points shall always taken by an official scorekeeper.

2. Model specifications

A model normally consists of wings, fuselage and tail. Flying wing models that do not have a fuselage and rudder or vertical stabilizer, or none of these components are also allowed if they have only two (2) control surfaces. Each of these panels has to be actuated by only one servo. Otherwise, the construction rules for conventional models described herein are applicable.

2.1.

The model is build-on mainly with wooden parts. Following methods are permitted:

- a) Wings build with ribs, open or covered by wood, „D-box“, solid wood wings or a combination of solid wood and ribs.
- b) All parts must be made from wood with exception of leading edge, spar(s) and connecting parts of the wing panels.
- c) The surface of the wings may be covered by film, silk, paper or polyester-fabric.

Specifications a) to c) are applicable for the tailplanes too.

d) The space between the rear edge of the spoilers and the trailing edge must be at least 5 cm. The spoilers may be activated by one or two servos.

e) The fuselage must be made entirely from wood, or with a tail boom made from fibre glass/carbon (GRP/CFRP) or Kevlar tube or profile. The tube/profile must not extend the front half of the wing area.

f) The wooden surface of the fuselage may be covered with fibre glass/carbon (GRP/CFRP) or Kevlar, but not more than a maximum of 1/3rd of the total area. The surface may be protected with varnish or like described at c).

g) Hinges and control rods are exempted from the GRP/CFRP constraint.

2.2 Not allowed is the use of

- a) positive or negative moulds for construction of the fuselage or wings or the surface treatment.
- b) a fixed or retractable arresting device (i.e. bolt, saw tooth-like protuberance, etc.) to slow down the model on the ground during landing. The underside of the model must not have any protuberances other than the tow hook and surface control linkages. The tow hook must not be larger than 5 mm in frontal width and 15 mm frontal height. It may be adjustable, but not by the radio. The release must not be executed by radio too.
- c) a fuselage nose with a radius less than 5 mm.
- d) ballast which is not carried internally and fastened securely within the airframe.
- e) any telemetry with the exception of radio signal strength, receiver temperature and battery voltage. No variometer permitted.
- f) any telecommunication between competitor and helpers, including mobile phones or walkie-talkies.

3 The flying site

- a) The competition must be held on a site having reasonably level terrain, which will minimise the possibility of slope and wave soaring.
- b) The flying site must have a starting line which is perpendicular to the wind direction and has marked starting spots for each competitor that are at least eight (8) meters apart. At 150 meters upwind there must be a line where the hi-starts are fixed. (possible exceptions see 6). The attachment points for hi-starts have the same spacing as the starting spots.
- c) The landing points are situated at least fifteen (15) meters downwind of every starting point.
- d) The Landing points and starting points shall always be clearly marked. The distance between fuselage nose and landing point will be measured by a tape or string which may be fixed at the landing point.
- e) The Contest Director shall determine the landing boundaries. Landing outside the boundary shall result in a zero score for that flight. (see also 8.2).

4 Contest flights

- a) The competitor is entitled to at least four (4) official flights.
- b) The competitor is entitled to an unlimited number of attempts during the working time.
- c) An official attempt begins when the model leaves the hand of the competitor or his helper under the tension of the hi-start.
- d) In case of multiple attempts, the result of the last flight will be the official score.

e) The contest director has the right to interrupt the competition and reset the launch line when the wind direction deviates too much or becomes a tailwind.

f) The contest shall be interrupted the contest director if the wind is continuously stronger than 8 m/s measured at two (2) metres above the ground at the starting line (flight line), for at least one minute

5. Re-flights

The competitor is entitled to a new working time if:

- a) his model in flight or in the process of being launched collides with another model flying or being launched.
- b) a towline (other than his own) was not removed after launch and is blocking (covering) his own towline.
- c) When his flight is hindered or aborted by an event beyond his control.

To claim a re-flight considering the above mentioned conditions, the competitor has to make sure that the official timekeepers have noticed the hindering conditions and land his model as soon as possible after this event.

Note that in the case the competitor continues to launch or continues to fly after hindering conditions affected his flight or does re-launch after clearing of the hindering condition(s), he is deemed to have waived his right to a new working time.

6. Launching

- a) Identical hi-starts shall be furnished and set up by the organizer.
- b) The hi-starts consists of a rubber tube of $15 \pm 0,2$ meter length, a nylon towline of 100 ± 1 meter length with a minimum diameter of 0.7 mm and a pennant attached.
- c) The pull strength of the rubber tube shall not exceed 4 kilogram if extended to a length of 45 meters. The variance of the pull strength of all rubber tubes used for the competition must be less than 0,4 kilogram. The minimum pull strength if pulled to 45 meters must not be less than 2,75 kilogram.
- d) On flying sites that will not accommodate a total hi-start space of 150 meters, the organiser may shorten the towlines. A suitable reduction of the working time and flight time may be taken into account. Such changes should be included in the contest tender.

7. Landing

- a) Before each flight each competitor will be assigned a landing spot that corresponds to his assigned starting spot. It shall be the responsibility of the competitor to use the correct assigned landing spot.
- b) During the landing process only the pilot and his assistant are allowed in within 10 meters of the landing spot. Any other helpers and timekeepers shall remain at their assigned starting spot.
- c) After landing, competitors may retrieve their model aircraft before the end of their working time providing they do not impede other competitors or model aircraft in their group. A model thus retrieved may be relaunched during the working time. No landing score may be recorded for a model that has been touched before scoring the landing.
- d) After landing the nose of the model must not stick into the ground. The landing is considered not to be scored if the nose sticks into ground and the tail of the model is way above the ground.

8. Scoring

8.1 Scoring of the flight time:

The attempt will be timed from moment of release from the launching device to either:

- a) the model aircraft first touches the ground; or
- b) completion of the group's working time.

The maximum flight time is six (6) minutes (360s) within nine (9) minutes (540s) working time. If the flight is longer than six (6) minutes (360s), the overflying time will be deducted from six (6) minutes (360s). The flight time will be recorded in full seconds. Each second of flight time will be scored two (2) points.

The highest score within each flight group will be assigned 1000 points and the remaining scores within that group shall be proportional to each participant's raw flight score relative to the best raw flight score within that group.

8.2 Scoring of the landing:

A landing bonus will be awarded in accordance with distance from the landing spot marked by the organisers according to the following tabulation:

Distance from spot up to m(meters)	points	Distance from spot up to m(meters)	points
0.2	100	5	80
0.4	99	6	75
0.6	98	7	70
0.8	97	8	65
1.0	96	9	60
1.2	95	10	55
1.4	94	11	50
1.6	93	12	45
1.8	92	13	40
2.0	91	14	35

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3.0	90	15	30
4.0	85	over 15	0

Zero points for landing will be recorded for the competitor, if

- a) the nose of the model sticks into ground after landing and the tail does not come to rest on the ground. (see 7 d)).
- b) the model sheds any parts.
- c) the model is not airworthy after landing.
- d) the model is overflying the groups working time.
- e) the model is touching by the competitor or helper during landing.
- f) the model is touched by the competitor or helper before the official scorekeeper made the distance measuring.

Zero points for the entire task (flight and landing) are awarded if:

- a) The model comes to rest outside a landing loundary specified by the originator. Within the working time the competitor may launch for another attempt.
- b) the model is overflying the working time more than 30 seconds.

9. Final classification

The final ranking of the competition is determined for the competitors qualified to the fly-off by the ranking at the fly-off, and by the ranking of the classification rounds for the other competitors.

10. Advice for contest notice

The contest notice will state any expected modifications in the total length of the histart and/or working time because of space limitations.