

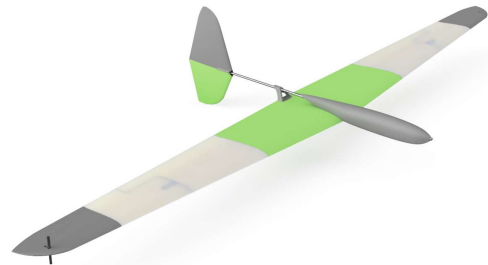
Argon 1500

3d-printz Original

Take-off-weight: ca. 250g
Span: 1500 mm
Airfoil: PW RES / PW RES Tip
CG: 39-41 mm
Wingload: 13g/dm²



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additional Material:

- Fuselage Carbontube 6 mm x 640mm
- 2x Mainspar Carbontube 6 mm x 440mm
- 2x Launchspar Carbontube 4 mm x 262mm
- 2x Carbonleadingedge 1 mm Rod x710mm
- 1x Launchstick Carbontube 4mm x 50mm

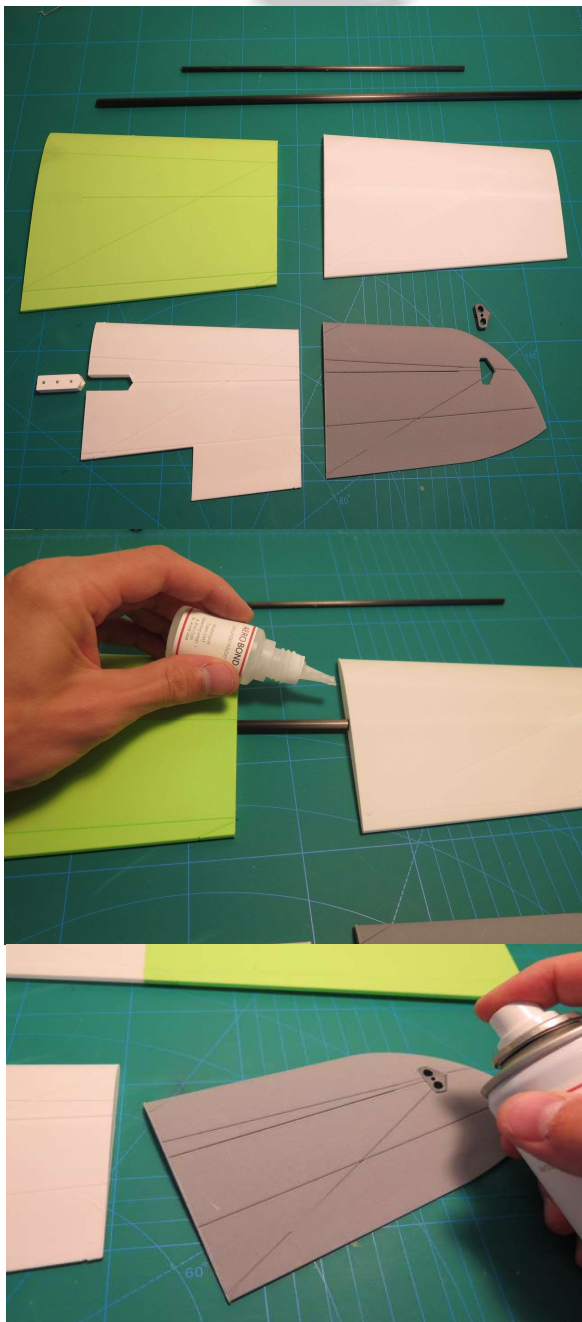
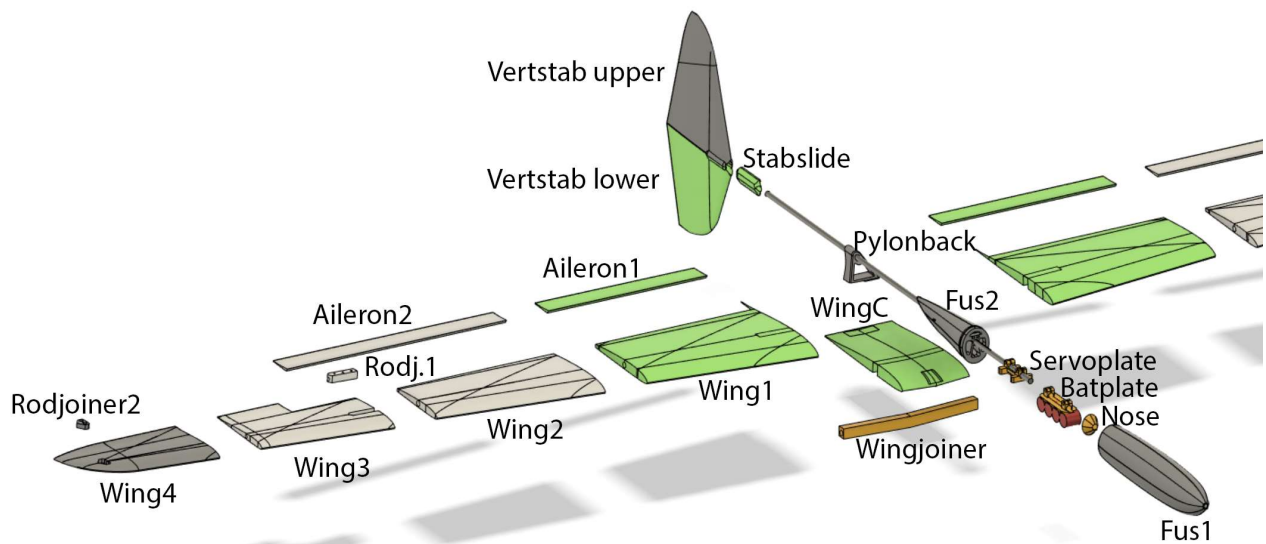
- 4x Plasticscrew M3 x 15mm
- 4x Plasticnut M3
- 3x cabletie small

RC Equipment:

- 1x Micro RX
- 2x 3,7g Servos - Reference: Hitec HS-40 or Clone (make sure to choose one with good proximity!)
- 1x RX-Battery NimH 350mah / Weight: 35-37g, 55 x 20 x 15 mm
- 2x Bowden/Steelrod ca. 250mm

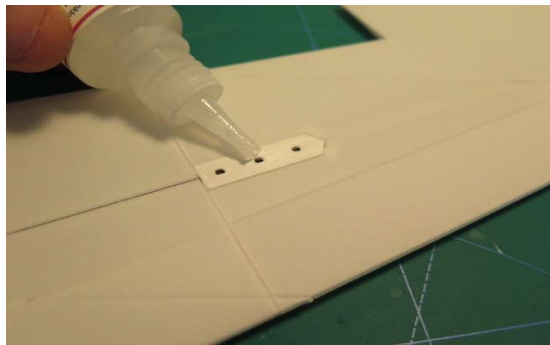
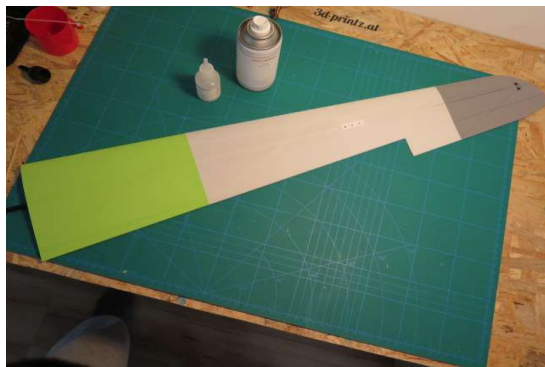
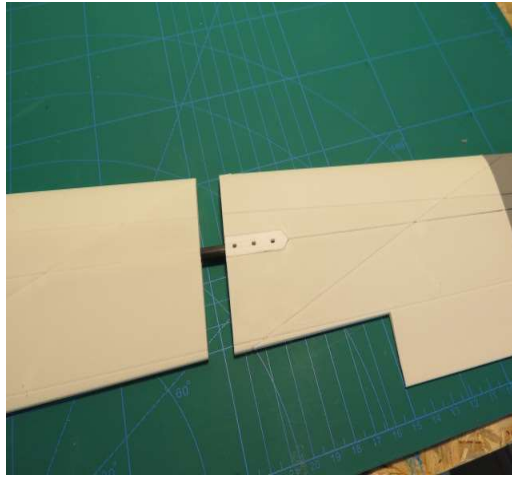
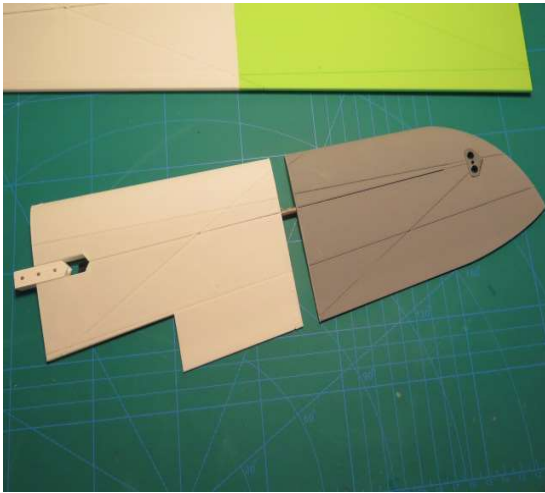
Foreword

Argon - a noble gas, only slightly heavier than air. That was also the goal when designing this 3D printable DLG. With a take-off weight of 230-250g, the argon can also compete among colleagues made of conventional materials when it comes to weight. This was achieved through the combination of LW-PLA, PLA and carbon reinforcements. In order to be able to absorb the forces that occur when throwing the plane discusstyle, we have created a force fit from the throwing pin to the center of the wing using 4 Spars. The fuselage construction was carried out in the "schaschlik-design" - all components sit on supports and the fuselage tube is connected to the wing via two "pylons". As a flying plank, argon is already an exotic species among DLGs, the fact that it also comes from the 3D printer leaves some jaws open. In the air, the argon feels very comfortable in tight circles, but also likes to do one or the other loop. A clean throwing technique must be used when throwing. The argon hardly reaches the throwing heights of its carbon fiber comrades, but a clean, targeted throw into the lift still promises success.

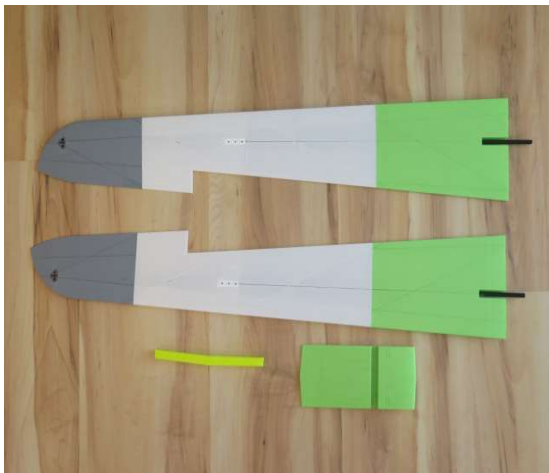


Assembly

We start by joining the two halves of the wing - first of all, always check whether the parts fit before you apply glue! Have Wing1 - 4, Rodjoinder 1 & 2, and the main and throwing spars ready. With thick or medium superglue, you now join Wing1 and Wing2, using the main spar as a guide (but do not glue it for the time being). Then you can press Rodjoinder2 into the recess provided in Wing4 and glue it if everything fits (make sure that the correct Rodjoinder is used, this is the case if the contour follows the wing profile). You can use the throwing spar as a guide here. Then glue Wing4 with Wing3 and Rodjoinder1, making sure that the Rodjoinder1 fits completely into the recess and is not blocked by the throwing spar. Now that Wing3 and Wing2 have also been glued, you can also thread Wing1 onto the main spar and glue it. To finish the wing half, fill the glue holes with thin superglue, making sure that the glue flows into the gaps - this is the only way to ensure a firm connection between the spars.

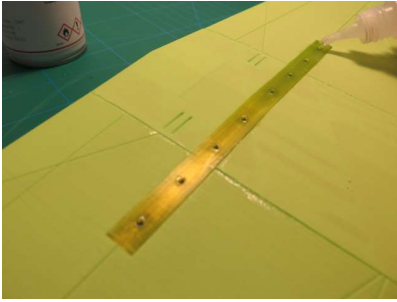


In the next step we connect the 2 wing halves together. A well thought-out, careful procedure also helps here - put the parts together on a trial basis before you apply adhesive! Get these parts ready:

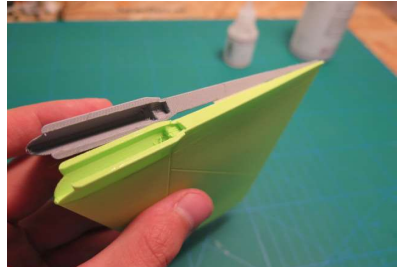


Now glue the wingjoiner to one wing joint, applying glue to all areas of the wingjoiner which then touch the existing wing and use the main spar as a guide rail to help guide the wingjoiner carefully into the wing half. The best way to do this is to use thick superglue. If the Wingjoiner sits in the wing half you can glue it with WingC - but remember that WingC must also be glued to the wing half, not just the wingjoiner!



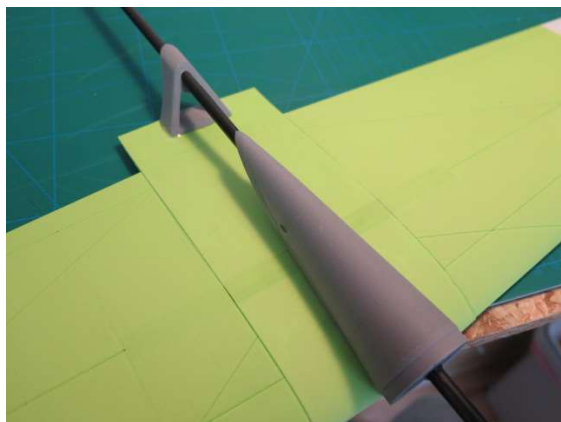
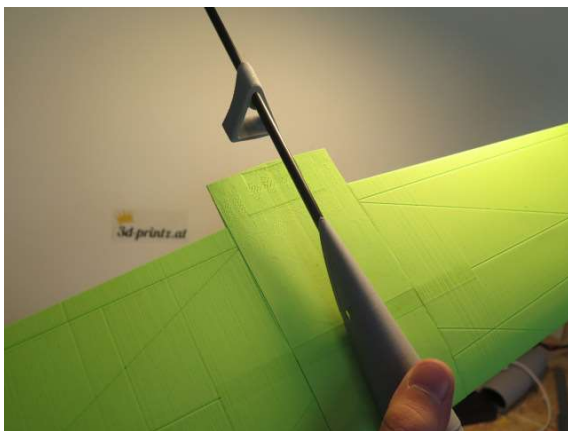
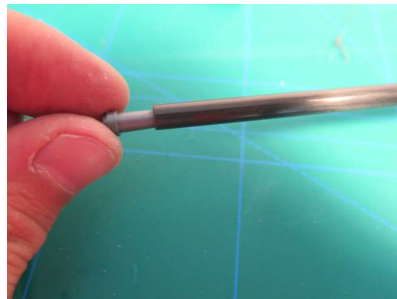


After the second wing half has also been connected to the rest of the construction by means of the main spar, the glue holes must be filled with thin superglue.

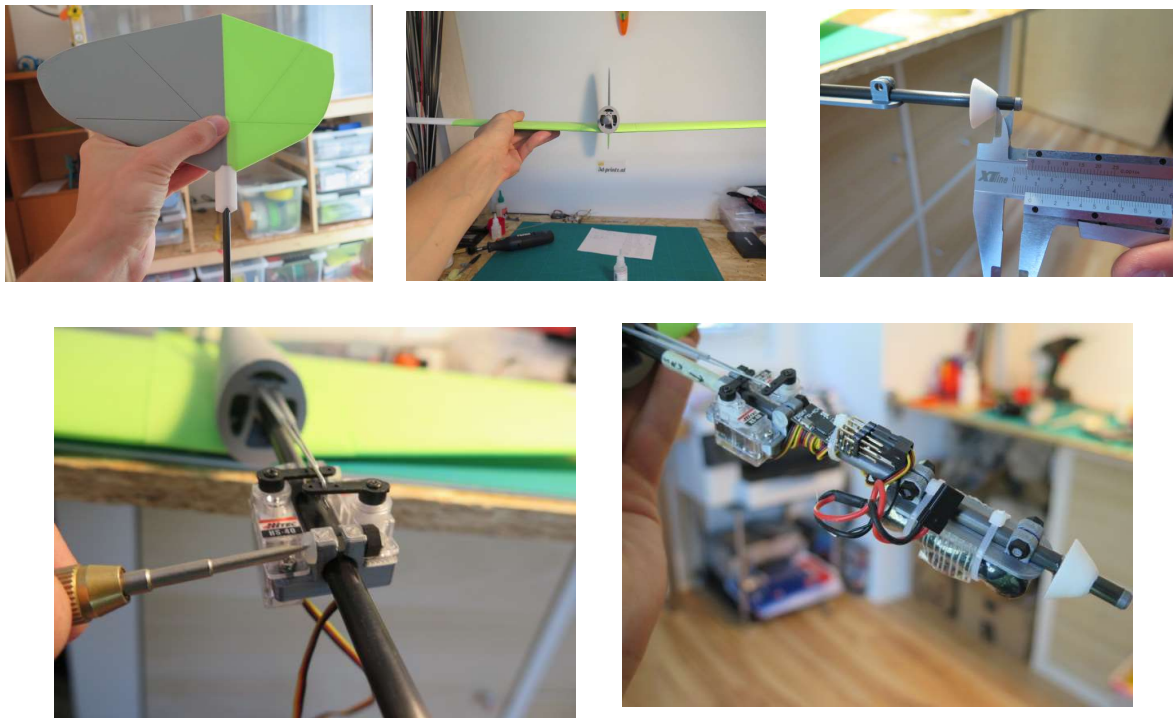


For assembling the Fin glue together the two halves „Vertstab lower“ and „Verstab upper“.

First glue Fus2 to the fuselage tube so that there is a 195mm of Carbontube left at the front (glue a “plug” to the front end of the fuselage tube to prevent the fuselage tube from splitting), then push the „pylonback“ onto the fuselage tube and position it roughly according to the recess on the wing (WingC). Then glue Fus2 into the front recess on the wing, paying attention to the alignment - using the recess in the back of the wing for „pylonback“. Then firmly glue the Pylonback:



In the last steps we glue the „Stab slide“ to the fuselage tube, but pay attention to the vertical alignment of the fin. The Fin itself can simply be slid on in the end. Now the servo plate and then the batplate can be pushed onto the fuselage tube, and temporarily fixed with 4x M3 plastic screws and nuts. Last but not least, put the nose on the fuselage tube and, in the non-glued state, push it backwards with the help of Fus1 until it is flush with Fus1 when the nose is attached, this should be the case if there is approx a Distance of 7mm from front Tube-end:



Now join the aileronparts, but make sure to orient them in the right way – the Hingegap lays on the lower Side of the wing and the Ailerons become wider on the outer wingsections. Simply glue them with CA. If you want you can also reinforce them, but make sure to save weight!

After this has been done, the electronics can be installed and the steering of the rudders can be made. To set the correct center of gravity, the RC components can be moved anywhere on the fuselage tube. However, this should only be done after complete completion. It is advisable to shorten the linkage wires only after the center of gravity has been set, as this also allows the servo module to be moved. "Secure" can be used to fix the clip-on nose before every Flight.

As the very last step, the 1mm carbon rod should be glued as a leading edge - to do this, simply glue the rod at one end, and gradually glue 10 cm pieces up to the wing tip.

Throws

At a suggested CG from 39-41 mm behind leadingedge we recommend these throws:

Neutral at CG 39-40mm: + 1mm Up
Aileron: +12mm /- 7mm, 10% Expo

Elevator: +6mm / -3 mm. 25% Expo

Launch: -1 mm from Neutral

Since the wing generates enormous lift when throwing the plane, the argon takes the nose up, so for a better starting height a little down-elevator should be programmed as the take-off position (approx. 1mm from the neutral position), as soon as the throwing energy is used up, you can switch to normal flight mode.

CG

The right center of gravity is essential for comfortable flight behavior. Due to its shape and property as a plank-flying wing, the argon has a very narrow flyable area for the center of gravity which is marked with 2 recesses on the underside of the wing. For the beginning, the front marking (40mm) or even 39mm should be used. The further back the CG, the more nervous the model reacts, but the performance also expands. In particular, the deflection at height should be greatly reduced if the center of gravity is pushed further back.

Please note that the center of gravity and the rudder deflections should be set by the pilot himself for each built argon - the values given here are only guidelines.

For the first flight, it is best to look for a meadow with tall grass and approach the optimum with careful discus throws. In principle, the argon can also be started normally, but you should be careful not to squeeze the nose.

We wish you a lot of fun with your argon!