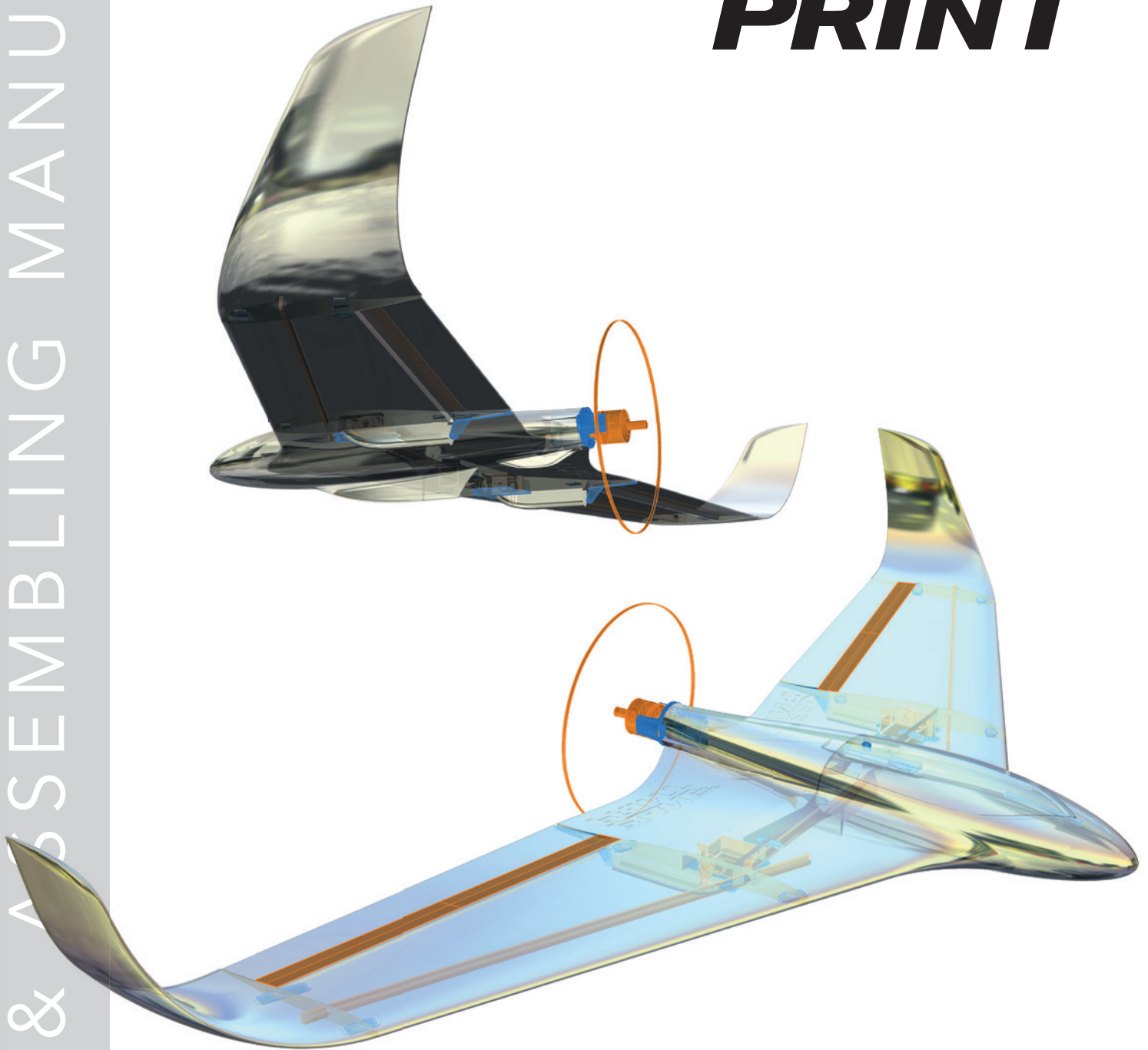


# PLANE PRINT



## PLANE PRINT *SPEEDWING*

RC Flying Wing Funflyer



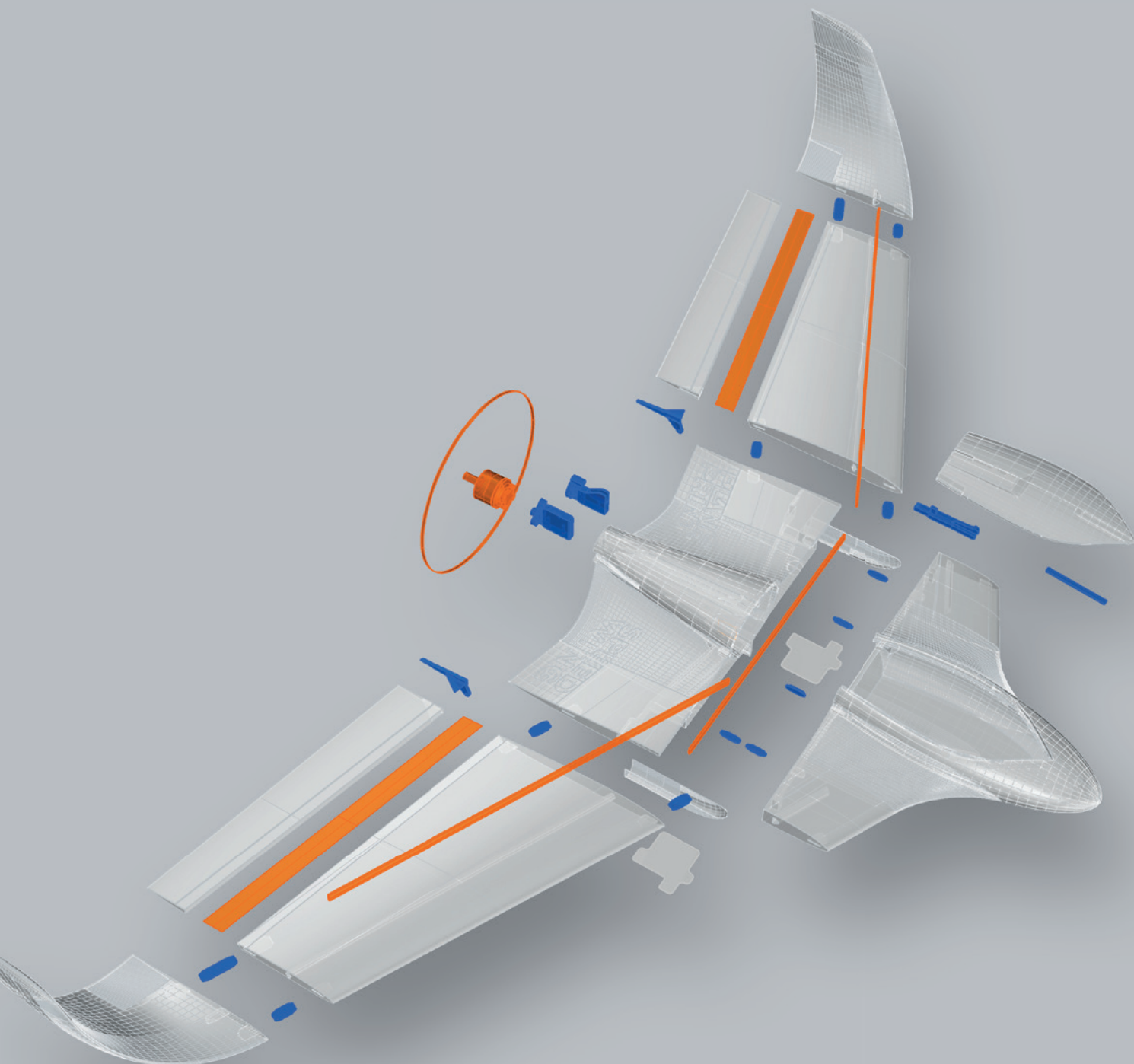
[www.planeprint.com](http://www.planeprint.com)

the **ONLY** place where you can get  
original Planeprint STL files **legally!**

© Copyright info:

The **design** of this aircraft is subject to the **copyright** of René Marschall  
and **PLANEPRINT** and may **not** be used or modified for any other purpose.

# PLANEPRINT *SPEEDWING*



■ LW-PLA ■ PLA ■ TPU ■ OTHER

# RC Components

**CRUISE VERSION** with good glide characteristics, ~ 120 km/h (62 mph):

**MOTOR** GOOSKY S2 Tail Motor

**BATTERY** 2S LiPo-Battery, 450 mAh

**PROP** Original to match the motor

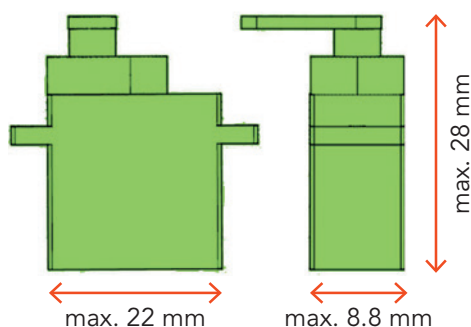
**BEC-CONTROLLER** at least 15 A



**RECEIVER** 3 Channels

**SERVOs** 2 Nano Servos for example:

- KAVAN GO-06 MG
- Volta D6M
- Hitec HS-40
- PLANET-HOBBY ECO Plus Picco 8
- CHASERVO DS 06



**SPEEDY VERSION**, ~ 200 km/h (124 mph):

**MOTOR** EMAX ECO Micro Series 1407 4100KV (or 2800 to 4000kv)  
Brushless Motor For FPV Racing RC Drone  
(there are many similar drives in the race drone sector)

**BATTERY** 3S LiPo-Battery, 650 mAh

**PROP** 4.7x4.7, 4x4 (all with two blades) – **must be balanced!**

**BEC-CONTROLLER** at least 30 A (must comply with the motor manufacturer's recommendation)



**Caution with very powerful drive variants** (e.g., 4100kv and 5x5 prop): The motor may overheat during longer periods of full throttle flight. It is recommended not to fly at full throttle for too long at the beginning and to allow the motor to cool down a little in between.

**GUIDELINES FOR OPTIMAL MOTORIZATION** For maximum speed, use motors with a high KV (around 4000) and props with a high pitch (up to 5). **Our recommended setting is a 4100kv motor with a 4.7x4.7 propeller and a 3S battery.** However, you must be aware of the high temperatures of the motor at full throttle and avoid longer periods of full throttle. The 30A regulator is also at its limit in this case. The motor mount should be checked carefully for heat deformation, especially after the first few flights.

With 3300kv motors, the system is significantly less stressed. It is best to try out different props to find your best setting.

**The motor screws must be secured with screw adhesive.**

# Required accessoires – basic equipment

- LW-PLA foaming! (**cannot be replaced by PLA!**), ~90 grams
- Tough PLA (or PLA), ~10 grams

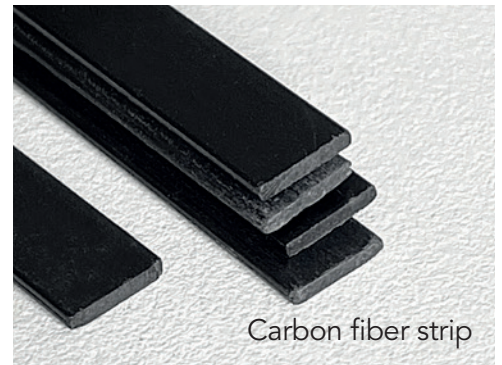
Printer space of 180x180x180 (cube) needed!

## Materials

- some tapping screws  
(search for: M2 flat head tapping screw assortment)
- CA super glue (liquid and liquid medium)
- CA activator
- UHU POR (or a comparable **contact** adhesive)
- Carbon fiber strip (flat profile) 1\*5\*1000mm, 1 piece
- Steel wire Ø0.8\*~200mm
- Duct Tape
- Self adhesive velcro tape



Tapping screws 2mm



Carbon fiber strip

## Tools

Cutter knife, small Philips screwdriver, Sandpaper grain ~150,  
Needle nose pliers, Metal saw





The development of a complex, airworthy RC flight model to express on any standard 3D printer is a very extensive process. **Therefore, we appeal to your fairness not to forward the STL data you have acquired to third parties.**

Thank you for your understanding and have fun with your PLANEPRINT MODEL!

## Printing the parts – Printing profiles

This manual is constantly being improved and supplemented, we recommend downloading the **latest version** from our website **before building**.

To print all **PLANEPRINT** models **you need to set some basic profiles in Cura** (If you use another slicer, please set the same parameters).

You can find the description at [www.planeprint.com/print](http://www.planeprint.com/print)

For this model you need the following profiles:

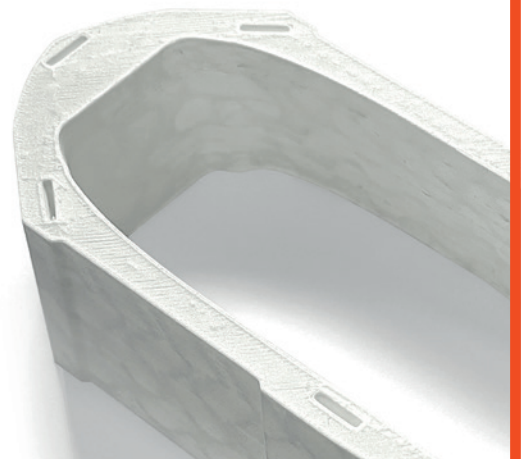


**NOTE** When printing the PLANEPRINT **SPEEDWING** you should pay particular attention to a light weight of **each** individual part.

### PROFILE P5\_Gyroid

It is **essential for the necessary stability** of the **LW parts printed with PROFILE\_5 are as stable as possible**. Please use a test part to check the strength by fracture tests. It must not break along the layer lines under any circumstances! Also note that the printing temperature for LW-PLA is as low as possible to obtain a wall thickness of 0.4 to 0.6 mm at a flow of 55 to 65 % (depending on brand and printer).

**Caution: at too high temperatures, LW-PLA becomes brittle and breaks more easily.**



# PROFILE P2\_Hollowbody Tough PLA or PLA



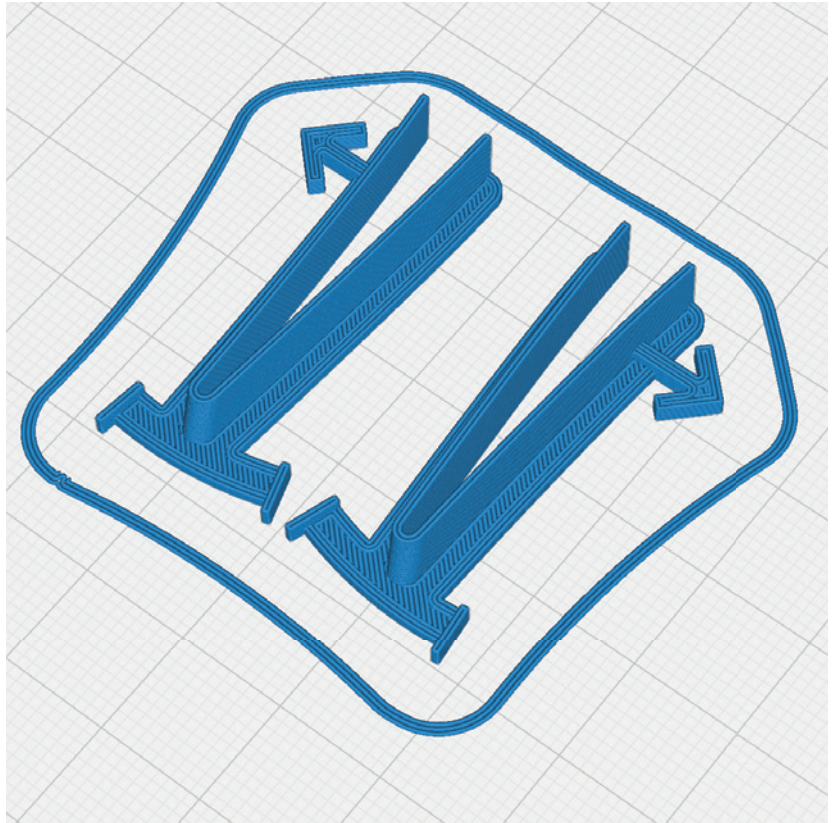
The information about the basic settings you can find on our website at PRINT.  
Please note the additional settings for the individual parts!

## P2\_Elevon Gauge\_sw.stl

**MATERIAL** PLA, Weight: ~ 2 g

### ADDITIONAL SETTINGS

None required



## P2\_Motormount 12\_sw.stl or P2\_Motormount GooskyS2\_sw.stl

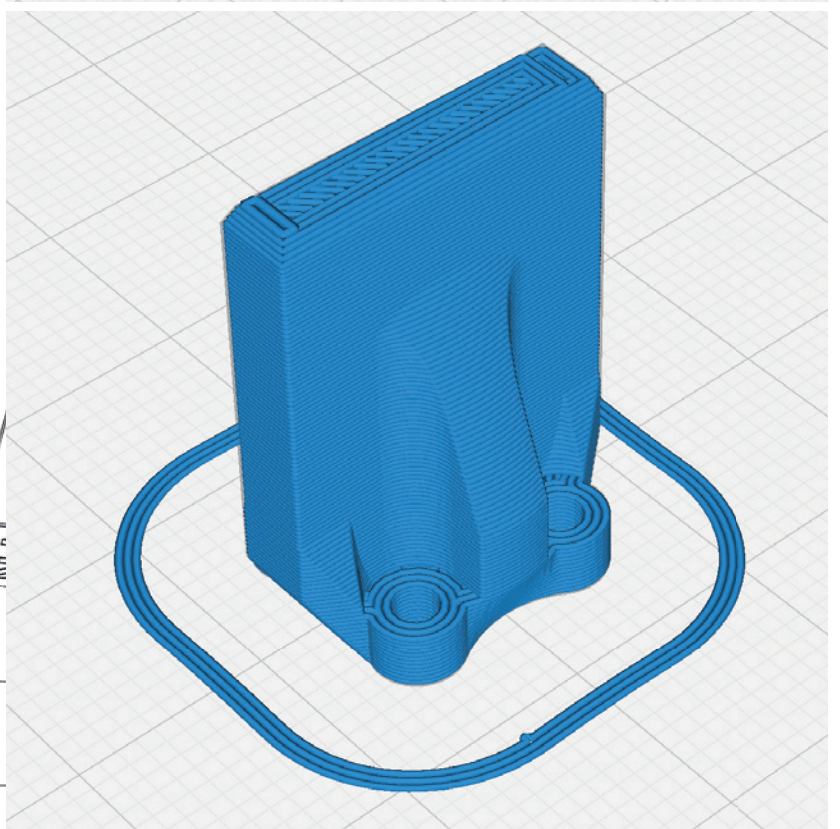
**MATERIAL** PLA, Weight: ~ 2 g

### ADDITIONAL SETTINGS

None required

If you are using a very powerful drive, this part should be printed with 100% infill (P1).

**TIP** There is also a cover for a glider version without a motor:





# PROFILE P2\_Hollowbody Tough PLA or PLA



The information about the basic settings you can find on our website at [PRINT](https://www.planeprint.com).  
Please note the additional settings for the individual parts!

## P2\_Parts\_sw.stl

**MATERIAL** PLA, Weight: ~ 2 g

### ADDITIONAL SETTINGS

None required



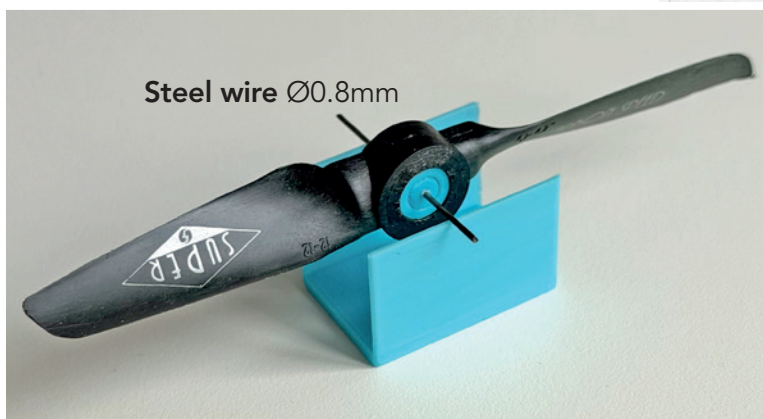
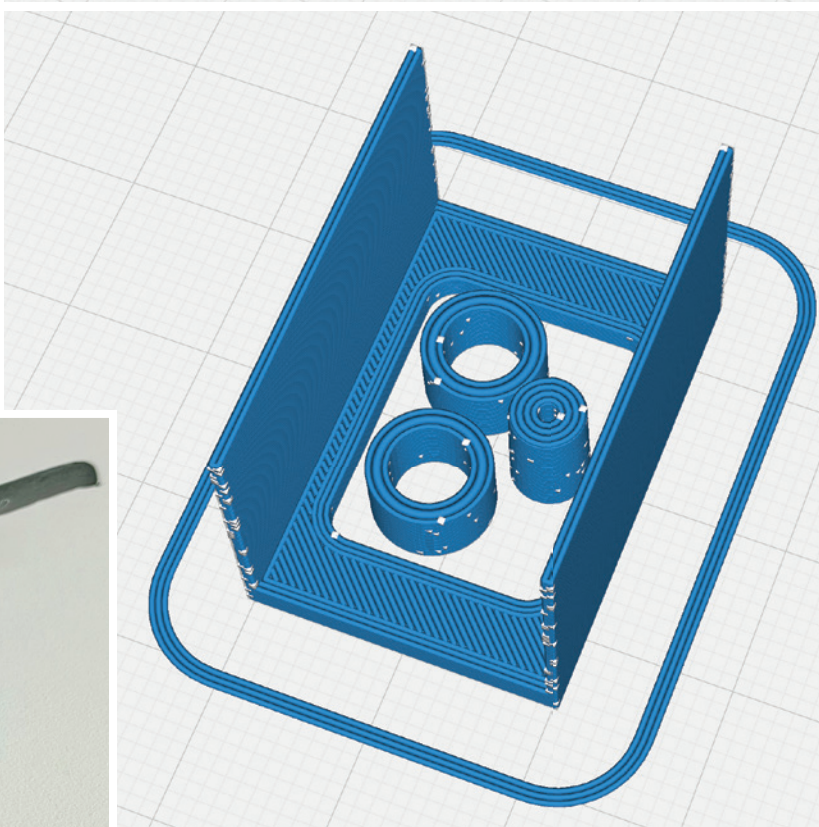
## P2\_Prop Balancer.stl

**MATERIAL** PLA, Weight: ~ 2 g

### ADDITIONAL SETTINGS

- Z-Seam: **random**

Shorten the prop on the heavy side until it is **perfectly** balanced.



# PROFILE P2\_Hollowbody Tough PLA or PLA



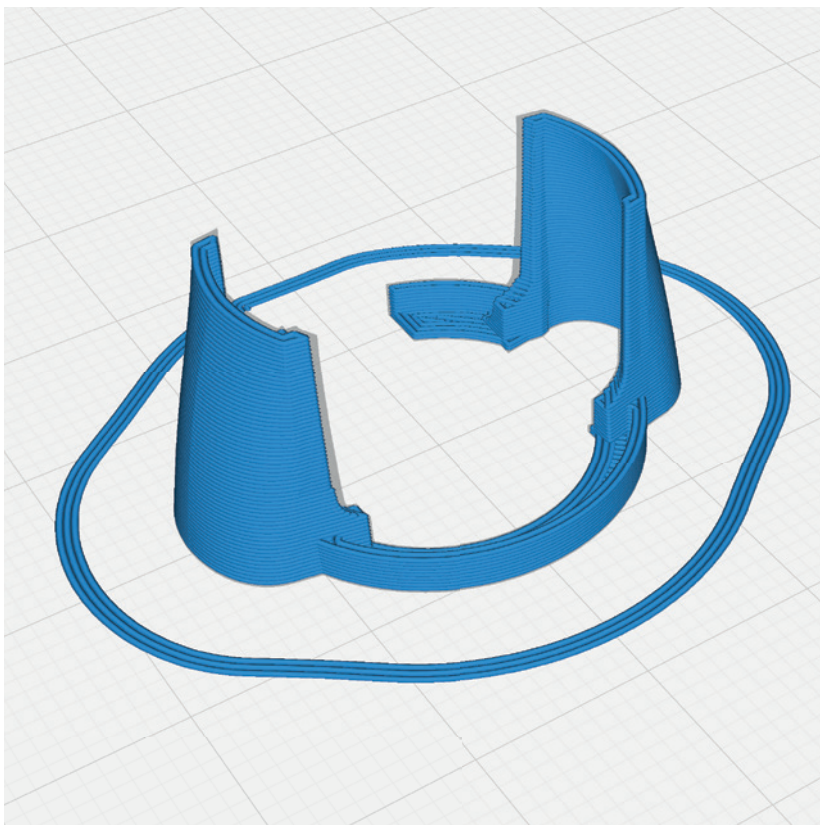
The information about the basic settings you can find on our website at [PRINT](https://www.planeprint.com).  
Please note the additional settings for the individual parts!

P2\_Motor Cooling 16mm.stl [or](#)  
P2\_Motor Cooling 18mm.stl

**MATERIAL** PLA, Weight: ~ 1 g

**ADDITIONAL SETTINGS**

None required





# PROFILE P5\_Gyroid LW-PLA (foaming)!



The information about the basic settings you can find on our website at PRINT.

**Please note the additional settings for the individual parts!**

**It is essential to print these parts with foaming LW-PLA (pre-foamed is heavier)!**

**Basic settings for LW-PLA:** Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment! Print only one STL at a time!

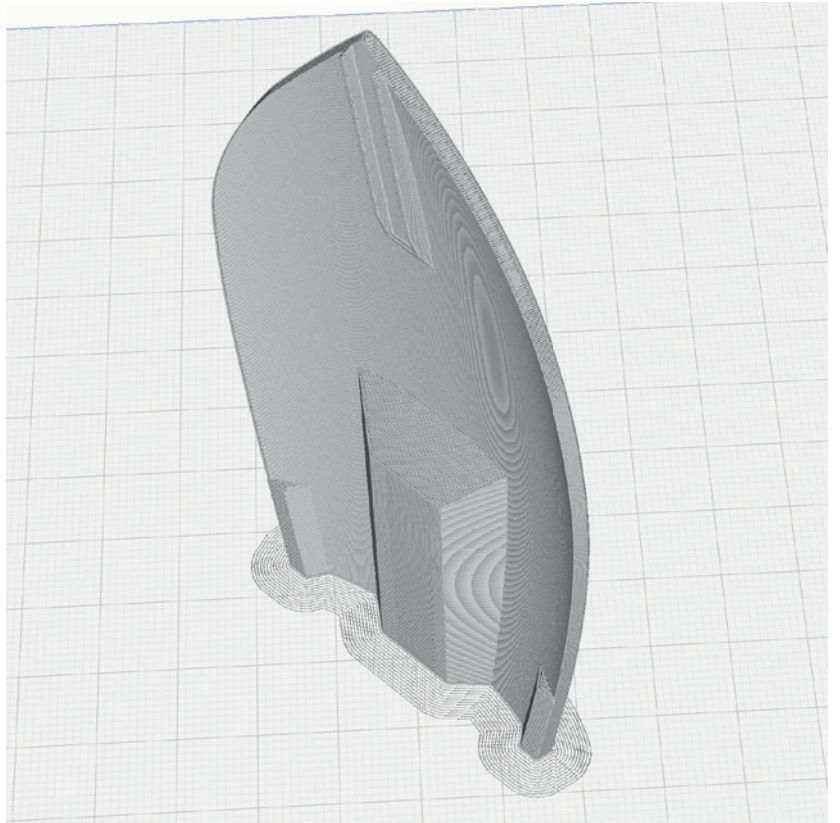
## P5\_Cover\_sw.stl

**MATERIAL** LW PLA, Weight: ~ 4 g

**TIME** ~ 40 minutes

### ADDITIONAL SETTINGS

- use Brim



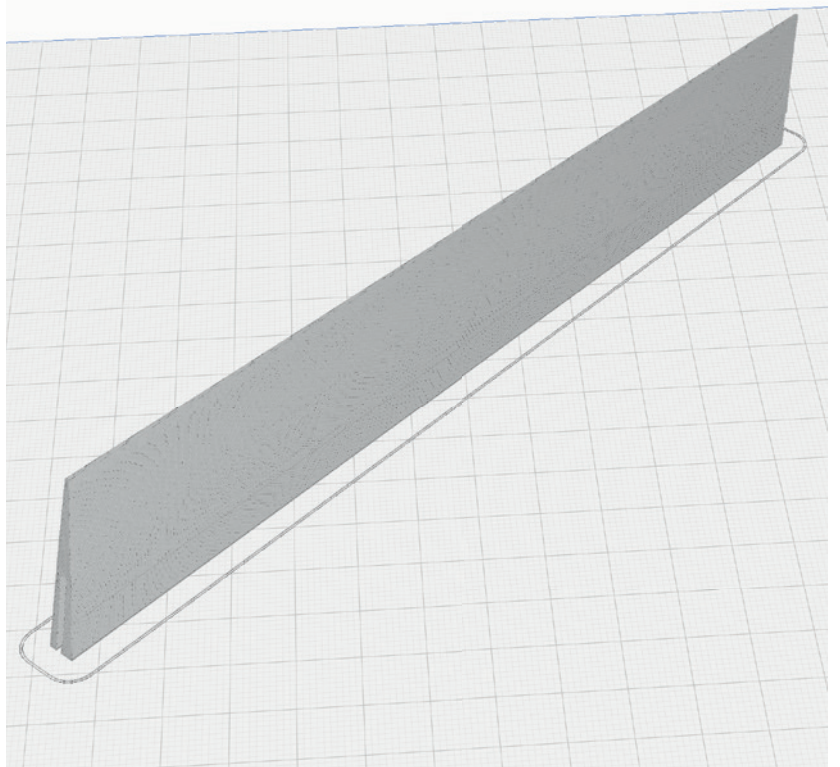
## P5\_Elevon L\_sw.stl and P5\_Elevon R\_sw.stl

**MATERIAL** LW PLA, Weight: ~ 3 g

**TIME** ~ 30 minutes

### ADDITIONAL SETTINGS

None required



# PROFILE P5\_Gyroid LW-PLA (foaming)!



The information about the basic settings you can find on our website at PRINT.

**Please note the additional settings for the individual parts!**

**It is essential to print these parts with foaming LW-PLA (pre-foamed is heavier)!**

**Basic settings for LW-PLA:** Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment! Print only one STL at a time!

## P5\_FUS 1\_sw.stl

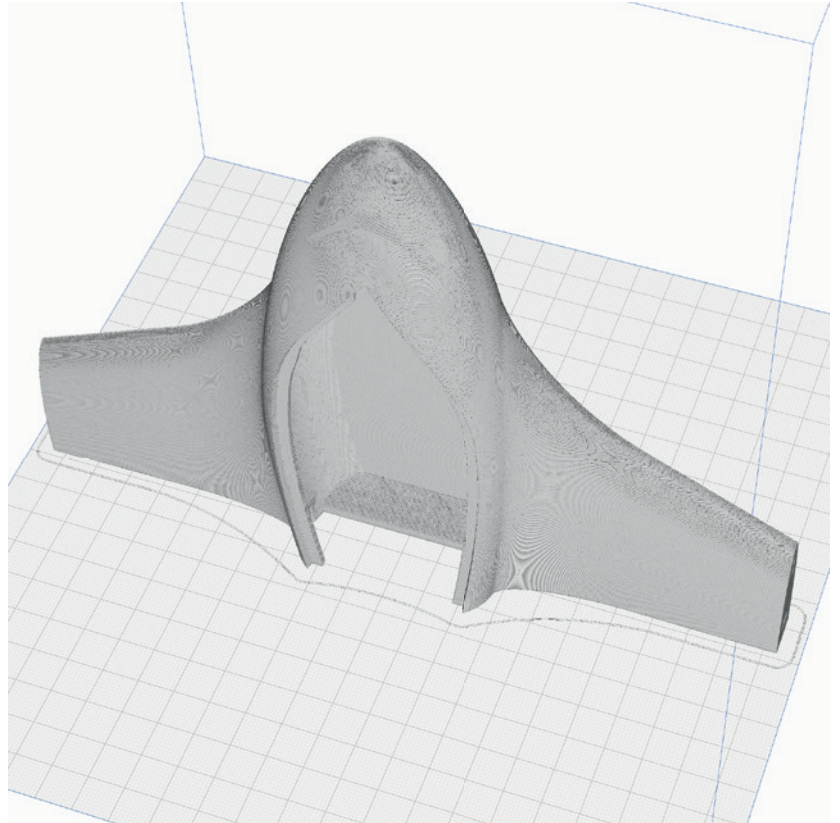
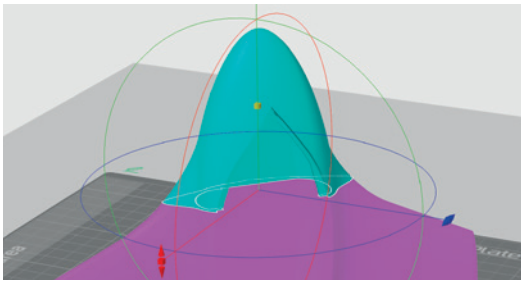
**MATERIAL** LW PLA, Weight: ~ 20 g

**TIME** ~ 4 hours

### ADDITIONAL SETTINGS

None required

**TIP** For better stability, you can print the nose area with two walls (perimeters). To do this, you can split the STL in the slicer and change the values at the top.



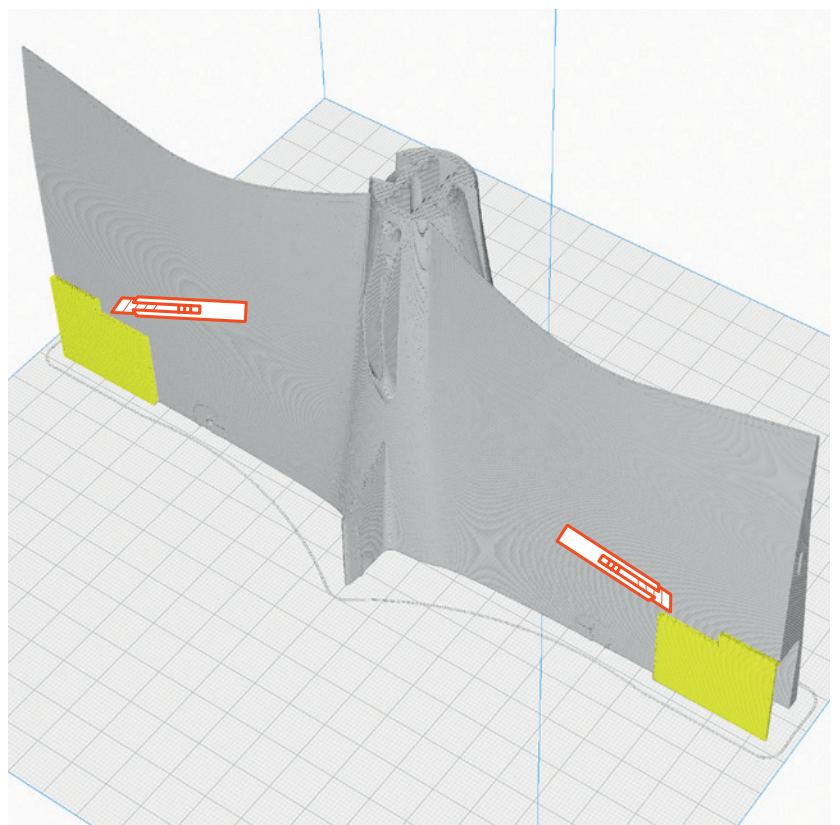
## P5\_FUS 2\_sw.stl

**MATERIAL** LW PLA, Weight: ~ 21 g

**TIME** ~ 4 hours 10 minutes

### ADDITIONAL SETTINGS

- Remove support (marked yellow)  
*Please be careful with the knife!*





# PROFILE P5\_Gyroid LW-PLA (foaming)!



The information about the basic settings you can find on our website at PRINT.

**Please note the additional settings for the individual parts!**

**It is essential to print these parts with foaming LW-PLA (pre-foamed is heavier)!**

**Basic settings for LW-PLA:** Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment! Print only one STL at a time!

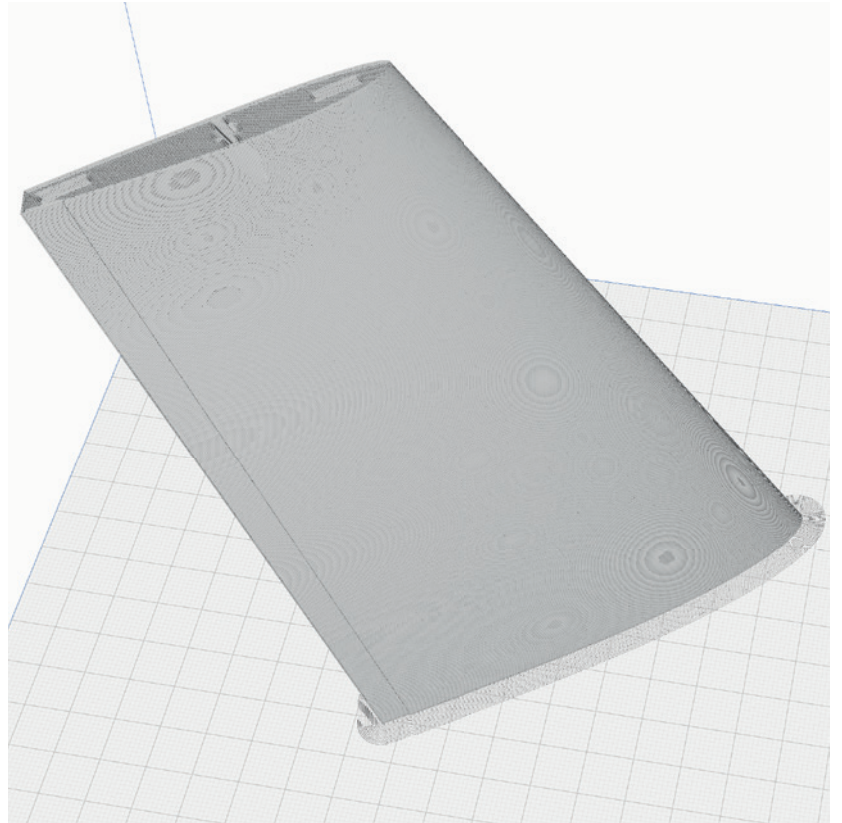
**P5\_Wing L\_sw.stl and  
P5\_Wing R\_sw.stl**

**MATERIAL** LW PLA, Weight: ~ 13 g

**TIME** ~ 3 hours

**ADDITIONAL SETTINGS**

- use Brim



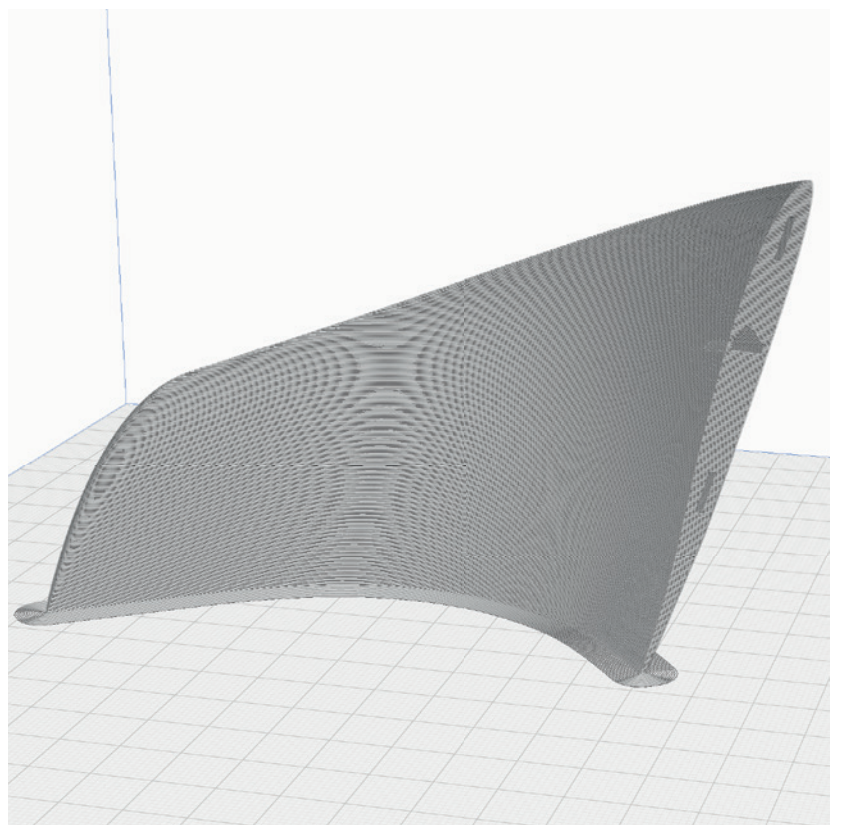
**P5\_Winglet L\_sw.stl and  
P5\_Winglet R\_sw.stl**

**MATERIAL** LW PLA, Weight: ~ 5 g

**TIME** ~ 1 hour

**ADDITIONAL SETTINGS**

- use Brim





# PROFILE P5\_Gyroid LW-PLA (foaming)!



The information about the basic settings you can find on our website at PRINT.

**Please note the additional settings for the individual parts!**

**It is essential to print these parts with foaming LW-PLA (pre-foamed is heavier)!**

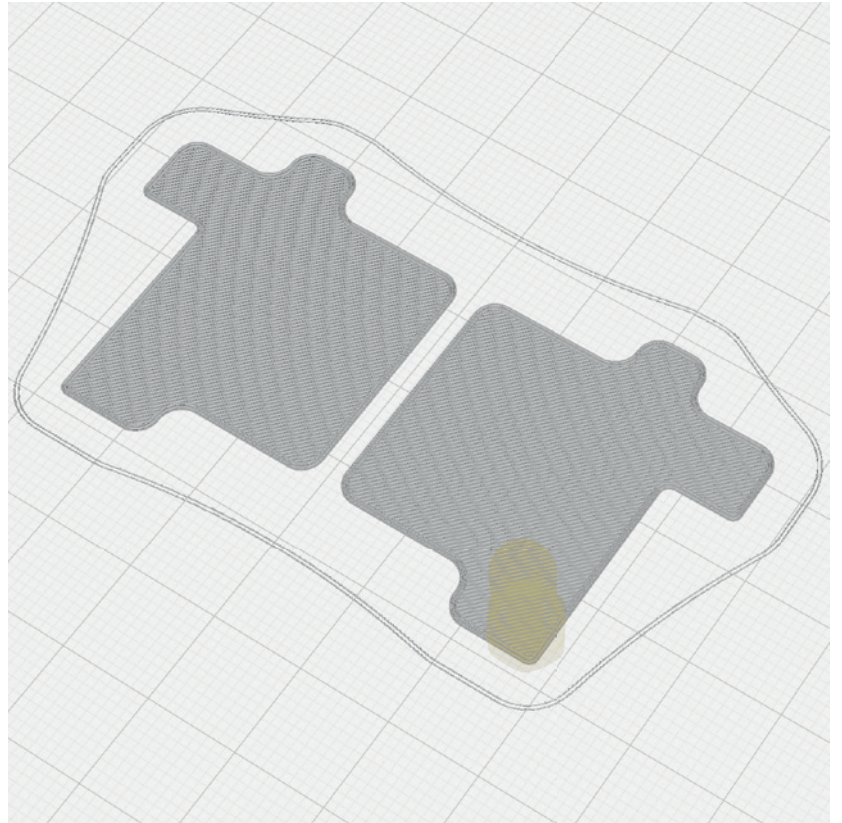
**Basic settings for LW-PLA:** Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment! Print only one STL at a time!

## P5\_Servo covers\_sw.stl

**MATERIAL** LW PLA, Weight: ~ 0 g

### **ADDITIONAL SETTINGS**

None required

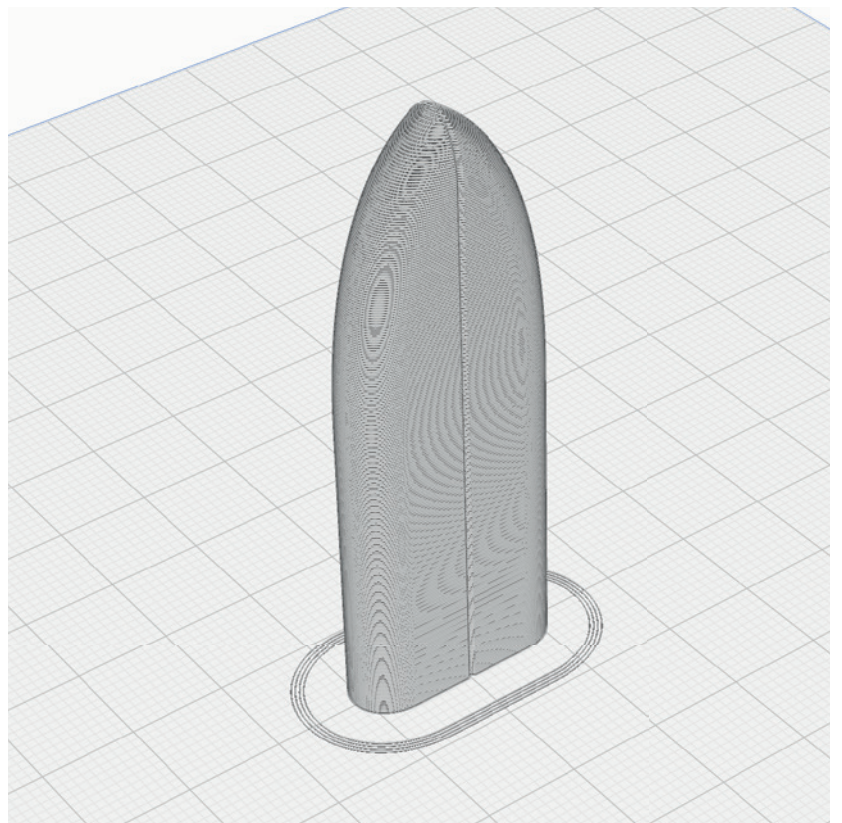


## Vase\_Servocover\_sw.stl

**MATERIAL** LW PLA, Weight: ~ 1 g

### **ADDITIONAL SETTINGS**

- use Brim



# Gluing the parts printed with PROFILE P5

- STEP 1** As a first step, it is important to **roughen and smooth the adhesive surfaces** with sandpaper.
- STEP 2** Insert the **interconnects into the slots** provided on one side.
- STEP 3** Apply **a lot of glue** to the side with the interconnects. It is important that there is glue everywhere, especially on the outside and inside of the wall surfaces, in order to achieve a perfect connection. The interconnects only serve to align the parts to each other. It is better **not** to apply glue here, otherwise it can happen that the glue suddenly hardens while the parts are being put together and stops the process.

**Use medium viscosity CA glue, thinner glue would run down the parts too easily.**

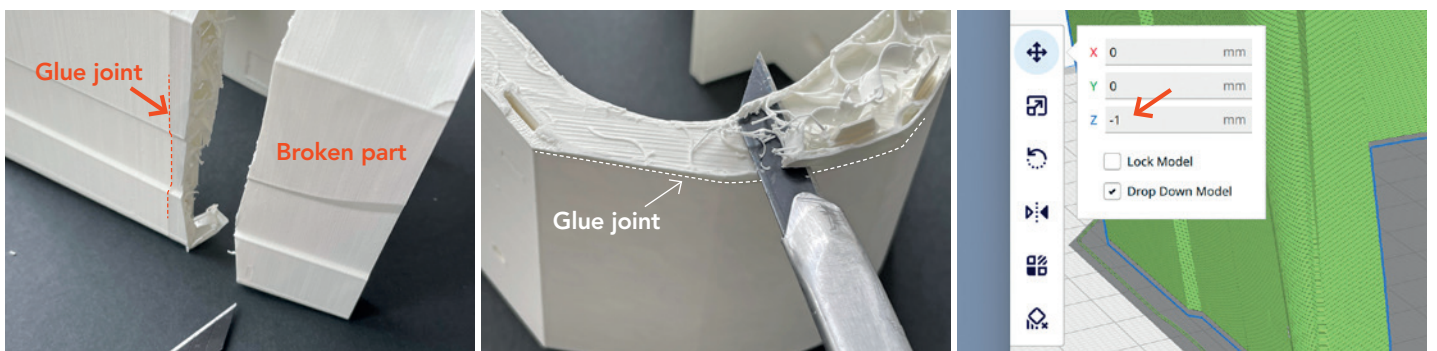
After assembly, **align the two parts exactly** and wipe off the excess CA glue from the surface with a cloth. Now spray with activator spray along the gluing surface and carefully press the parts together.

- STEP 4** Clean the glued areas slightly with a **sharp-bladed cutter**.



## PROFILES 5 parts are easy to repair

- STEP 1** Using the knife, carefully remove the damaged part about 3 mm from the glue joint between two parts.
- STEP 2** Cut wall and infill and clean the surface with sandpaper. **The top surface of the damaged part remains!**
- STEP 3** The remaining top surface is about 1 mm thick. To compensate for this, you can move the new part to be printed down the Z axis in Cura by 1 mm.

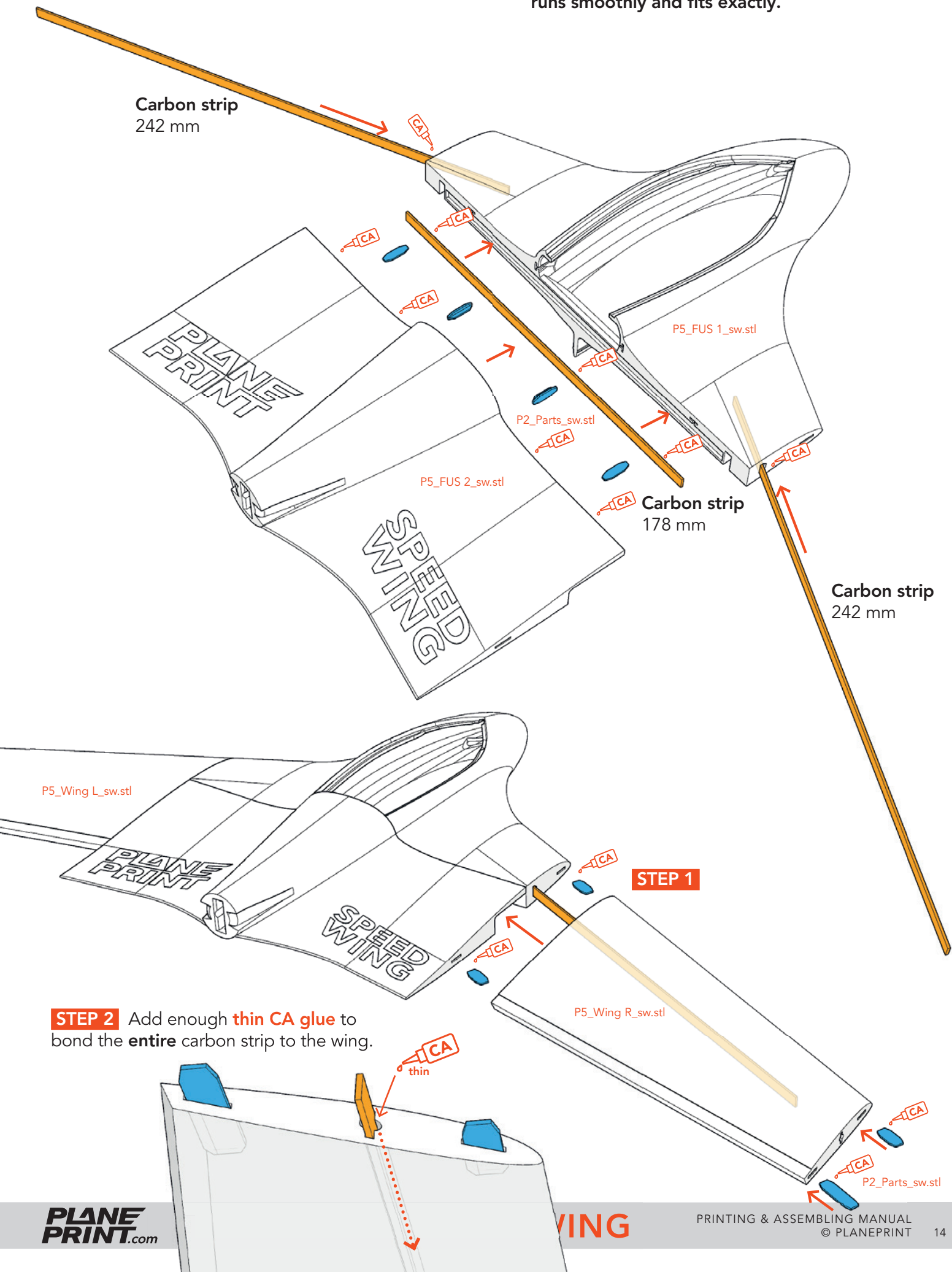




# Assembly



**TIP** Always put all parts together **BEFORE** gluing and check that everything runs smoothly and fits exactly.



**STEP 2** Add enough **thin CA glue** to bond the **entire** carbon strip to the wing.



## Assembly



P5\_Winglet L\_sw.stl

## Cover

P2\_Parts\_sw.stl

P5\_Cover\_sw.stl

P2\_Parts\_sw.stl

Only insert this part,  
do not glue it!

Treat the adhesive surface of the duct tape with UHU POR or CA glue beforehand and allow it to dry. **Then** stick an **11 mm wide strip of tape** onto the elevon. Cut off the excess ends at the same angle as the elevons and stick the elevon to the wing.

Duct tape 11 mm wide

P5\_Elevon L\_sw.stl

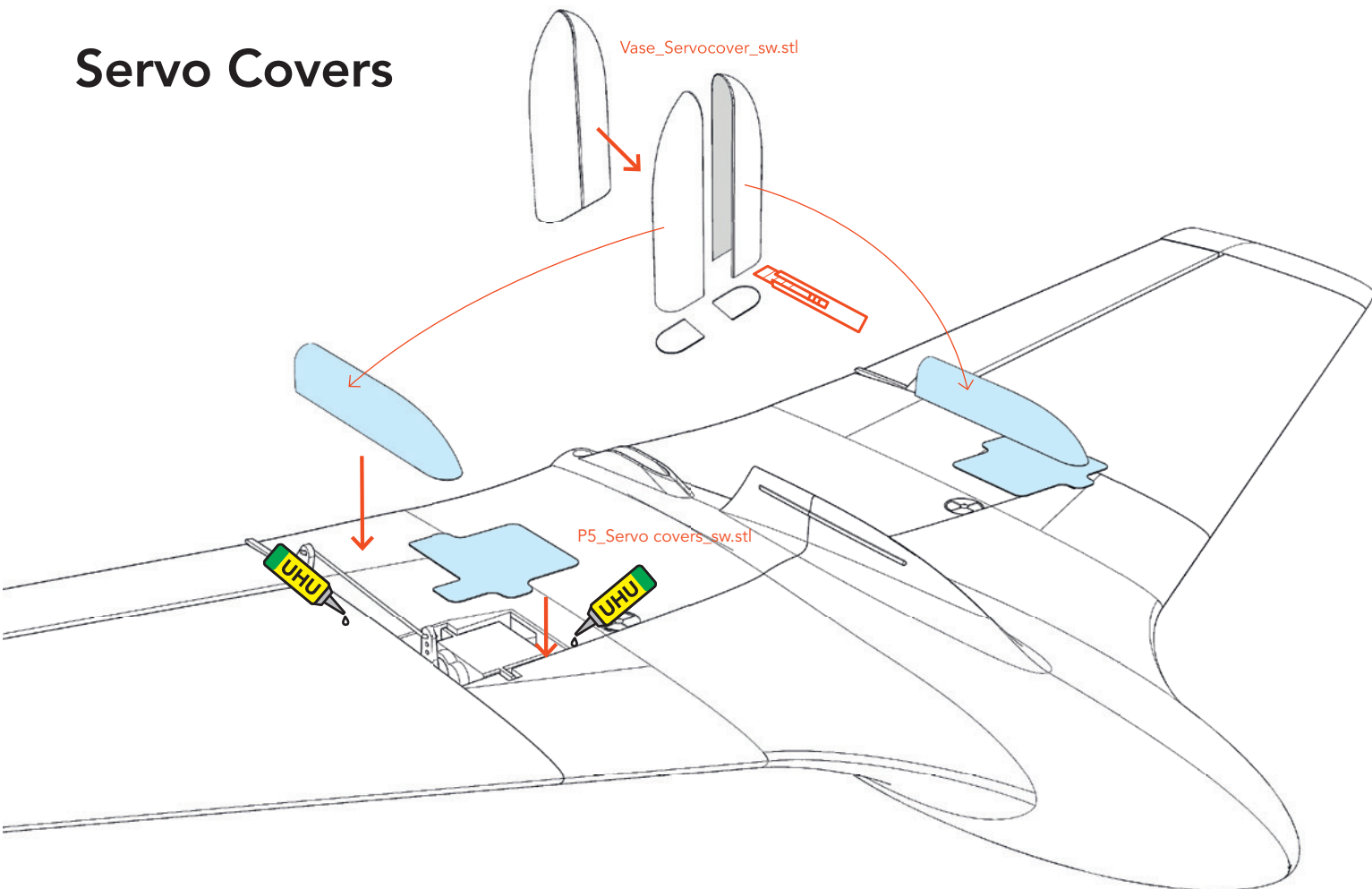
## Wing Servos

The servo is attached using UHU POR. Apply sufficient glue **to both adhesive surfaces** (servo and wing) and **allow to dry thoroughly**. Then attach the Steel wire to the elevon and servo and glue it in the correct position so that the elevon and servo are in the **neutral** position.

Steel wire  $\varnothing 0.8 \times 51$  mm

(It is more accurate if you measure this length yourself.)

# Servo Covers

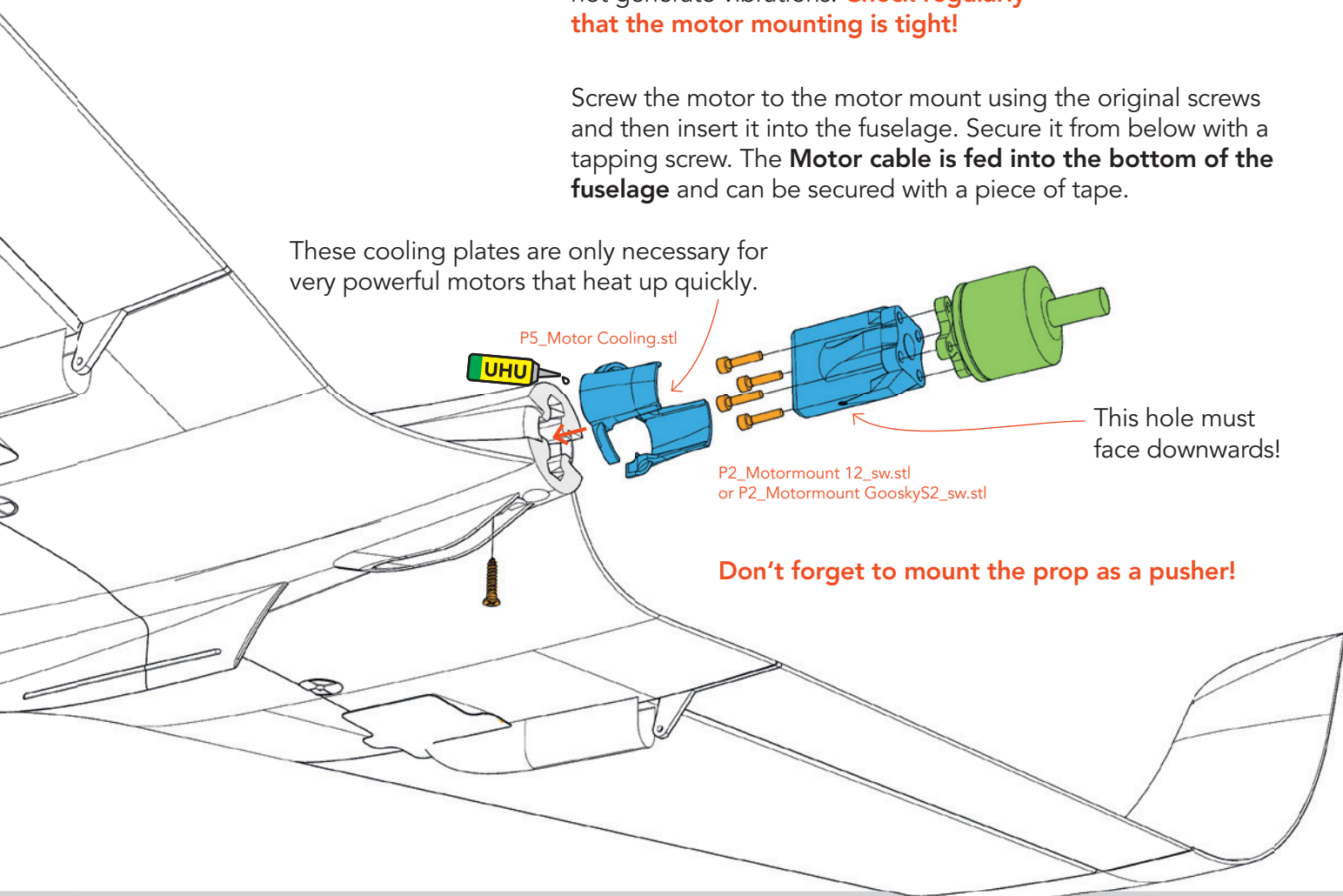


# Motor mount

**SAFETY FIRST** Make sure the prop does not generate vibrations. **Check regularly that the motor mounting is tight!**

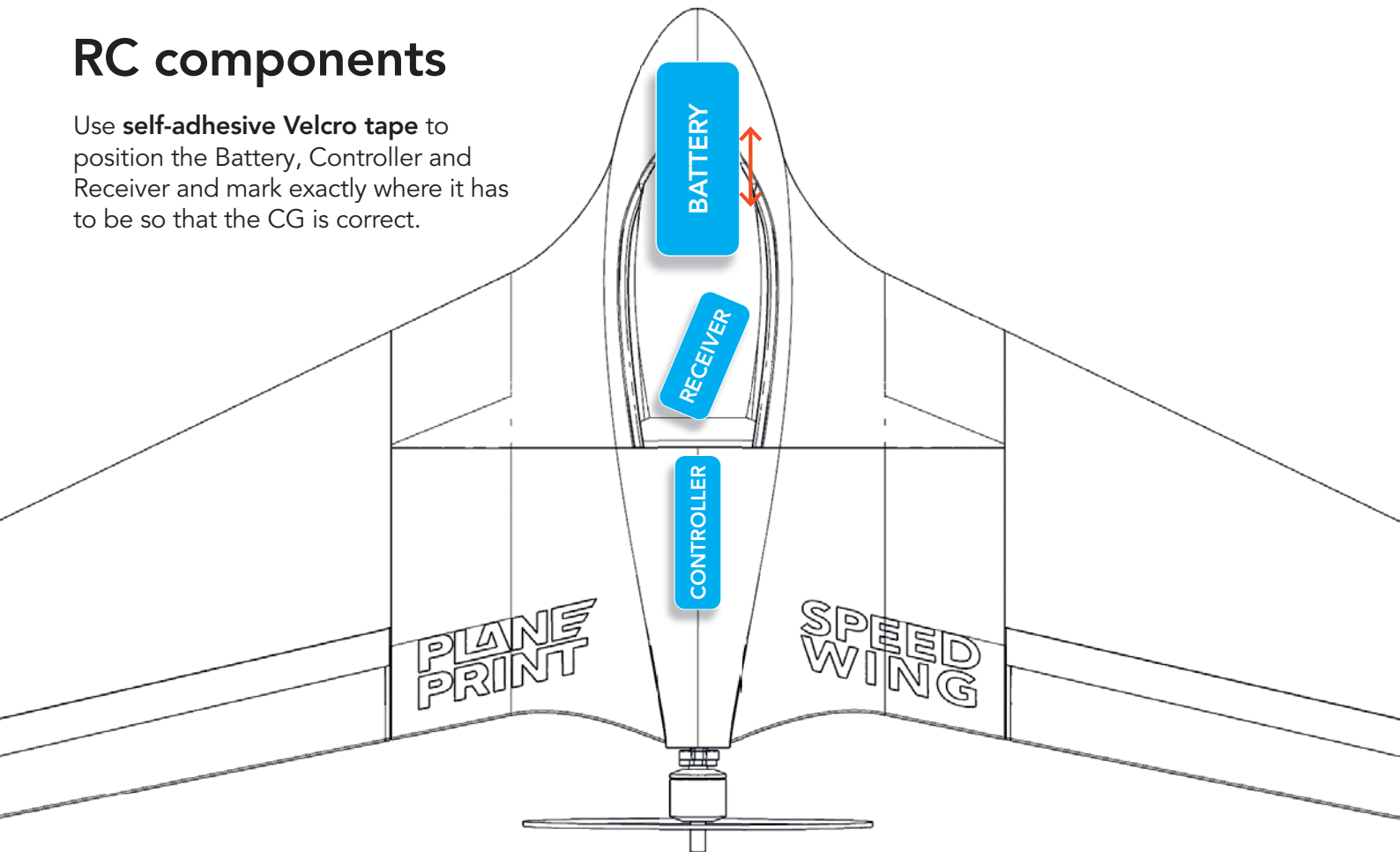
Screw the motor to the motor mount using the original screws and then insert it into the fuselage. Secure it from below with a tapping screw. The **Motor cable is fed into the bottom of the fuselage** and can be secured with a piece of tape.

These cooling plates are only necessary for very powerful motors that heat up quickly.



# RC components

Use **self-adhesive Velcro tape** to position the Battery, Controller and Receiver and mark exactly where it has to be so that the CG is correct.

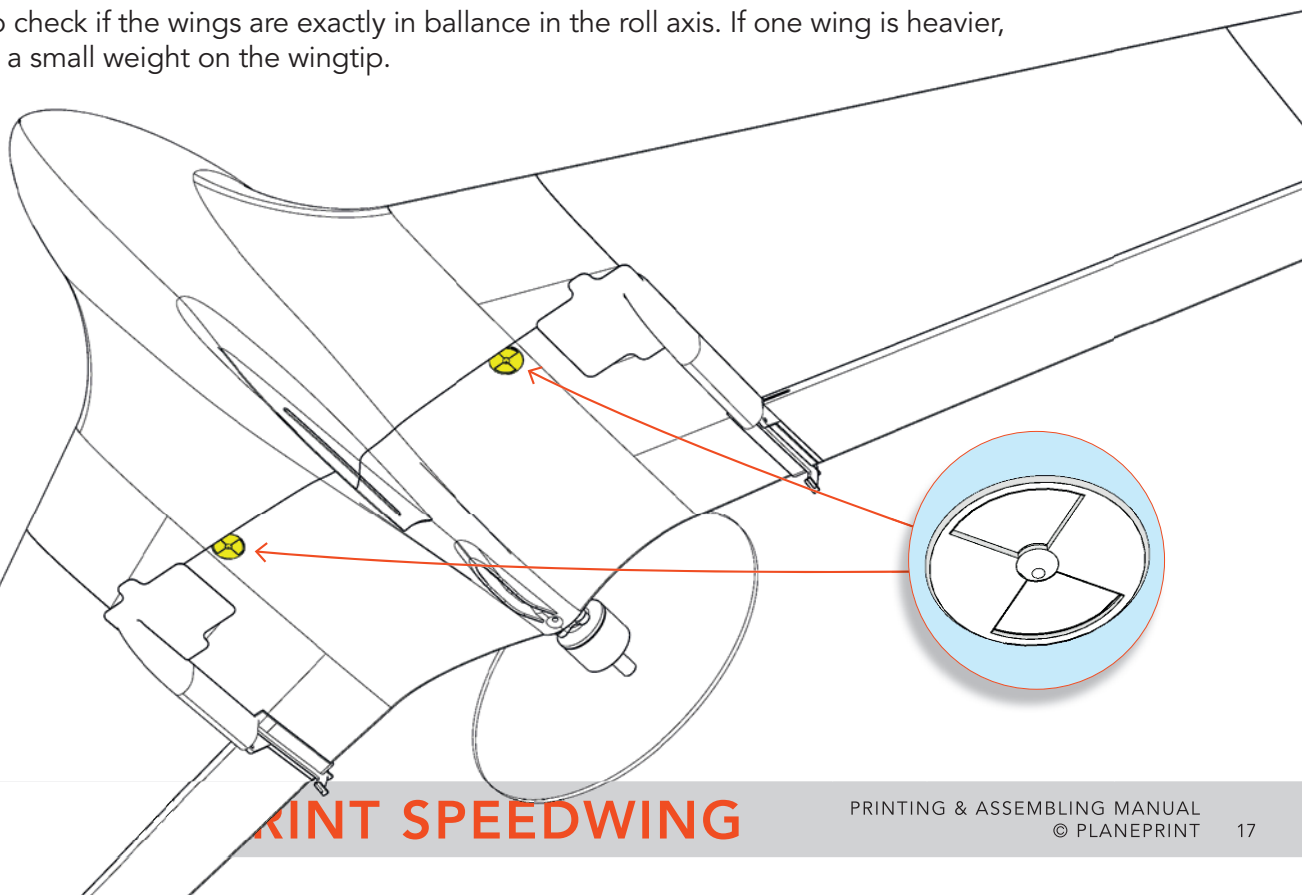


## Center of Gravity (CG)

The bird must balance on these points (**never behind it!**) – **see the markings on the wing.**

**NOTE** The range of optimum CG is particularly small with a flying wing and you have to find the most comfortable CG for yourself in flight. The further forward it is, the easier the model is to fly, the further back the performance is greatest.

Do not forget to check if the wings are exactly in balance in the roll axis. If one wing is heavier, correct this with a small weight on the wingtip.





# Technical specifications

**WINGSPAN** 700 mm/27.5 inches

**LENGTH** 316 mm/12.4 inches

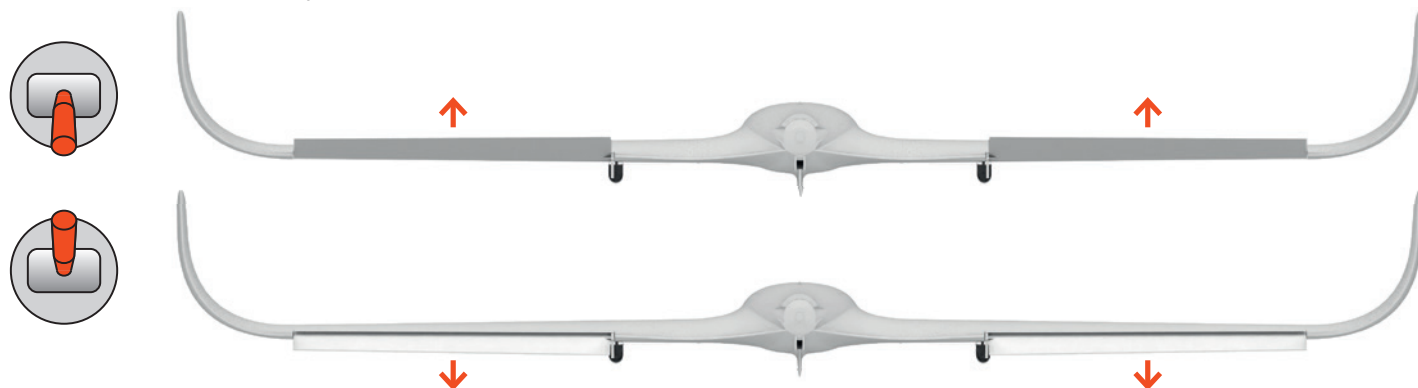
**FLIGHT WEIGHT** ~160 grams (2S version), ~200 grams (3S version)

**WING LOAD** 19 g/dm<sup>2</sup> (2S version), 23 g/dm<sup>2</sup> (3S version)



# Control Direction Test Look at the aircraft from behind

**ELEVATOR** 6 mm up/ 9 mm down



**AILERON** 6 mm up/ 9 mm down

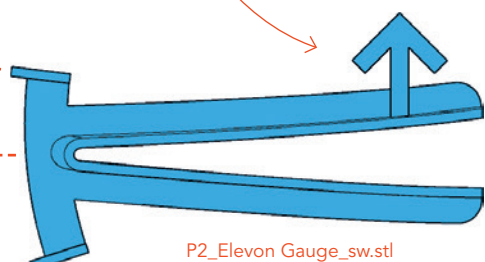


**TIP** Use this tool to adjust the elevons.  
The arrow must point upwards!

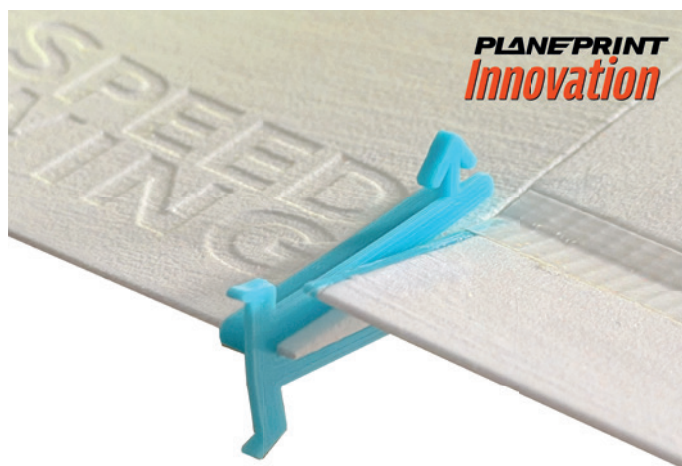
Elevon up

Elevon zero

Elevon down



P2\_Elevon Gauge\_sw.stl

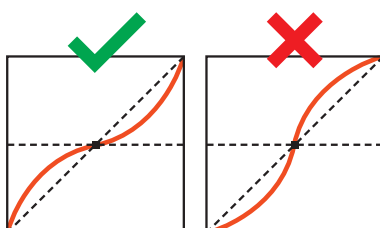


- TIPS**
- For the first flight, the elevons should be **trimmed up** ↑ by approximately 1 mm.
  - We recommend setting a **Flight Mode to a switch for hand launch**: both elevons should be trimmed 2 mm upwards here. **The SPEEDWING should be thrown ~30° upwards.**
  - The motor brake should be activated so that the propeller does not brake during gliding.

**EXPO**

**ELEVATOR** 40 %

**AILERON** 60 %



(for some remote controls a minus has to be in front of the number)

**TIP** With very fast motorization, the elevon travel should be reduced slightly.

# AGE RECOMMENDATION 14+

## NOT FOR CHILDREN UNDER 14 YEARS. THIS IS NOT A TOY!

The STL data (or data processed from it, such as G codes) must never be passed on to third parties!

The purchase of the STL does not authorize the production of models for third parties.

By using the download data, an RC model airplane, called „model“ for short, can be manufactured using a 3D printer. As a user of this model, only you are responsible for safe operation that does not endanger you or others, or that does not damage the model or property of others.

PLANEPRINT.com assumes no responsibility for damage to persons and property caused by pressure, transport or use of the product. Filaments, printing supplies, hardware or consumables that can not be used after faulty 3D printing will not be replaced by PLANEPRINT.com in any way.

When operating, always keep a safe distance from your model in all directions to avoid collisions and injuries.

This model is controlled by a radio signal. Radio signals can be disturbed from outside without being able to influence it. Interference can lead to a temporary loss of control.

Always operate your model on open terrains, far from cars, traffic and people.

Always follow the instructions and warnings for this product and any optional accessories (servos, receivers, motors, propellers, chargers, rechargeable batteries, etc.) carefully.

Keep all chemicals, small parts and electrical components out of the reach of children.

Avoid water contact with all components that are not specially designed and protected. Moisture damages the electronics.

Never take an item of the model or accessory in your mouth as this can lead to severe injuries or even death.

Never operate your model with low batteries in the transmitter or model.

Always keep the model in view and under control.  
Use only fully charged batteries.

Always keep the transmitter switched on when the model is switched on.

Always remove the battery before disassembling the model.

Keep moving parts clean and dry at all times.

Always allow the parts to cool before touching them.

Always remove the battery after use.

Make sure that the Failsafe is properly set before the flight.

Never operate the model with damaged wiring.

Never touch moving parts.

We develop our models to the best of our knowledge and belief.  
We accept no liability for consequential damage and injuries caused by improper use or incorrectly printed parts. **Please be careful when handling motors, batteries and propellers** and only move your model with insurance and in approved places!

# PLANE PRINT