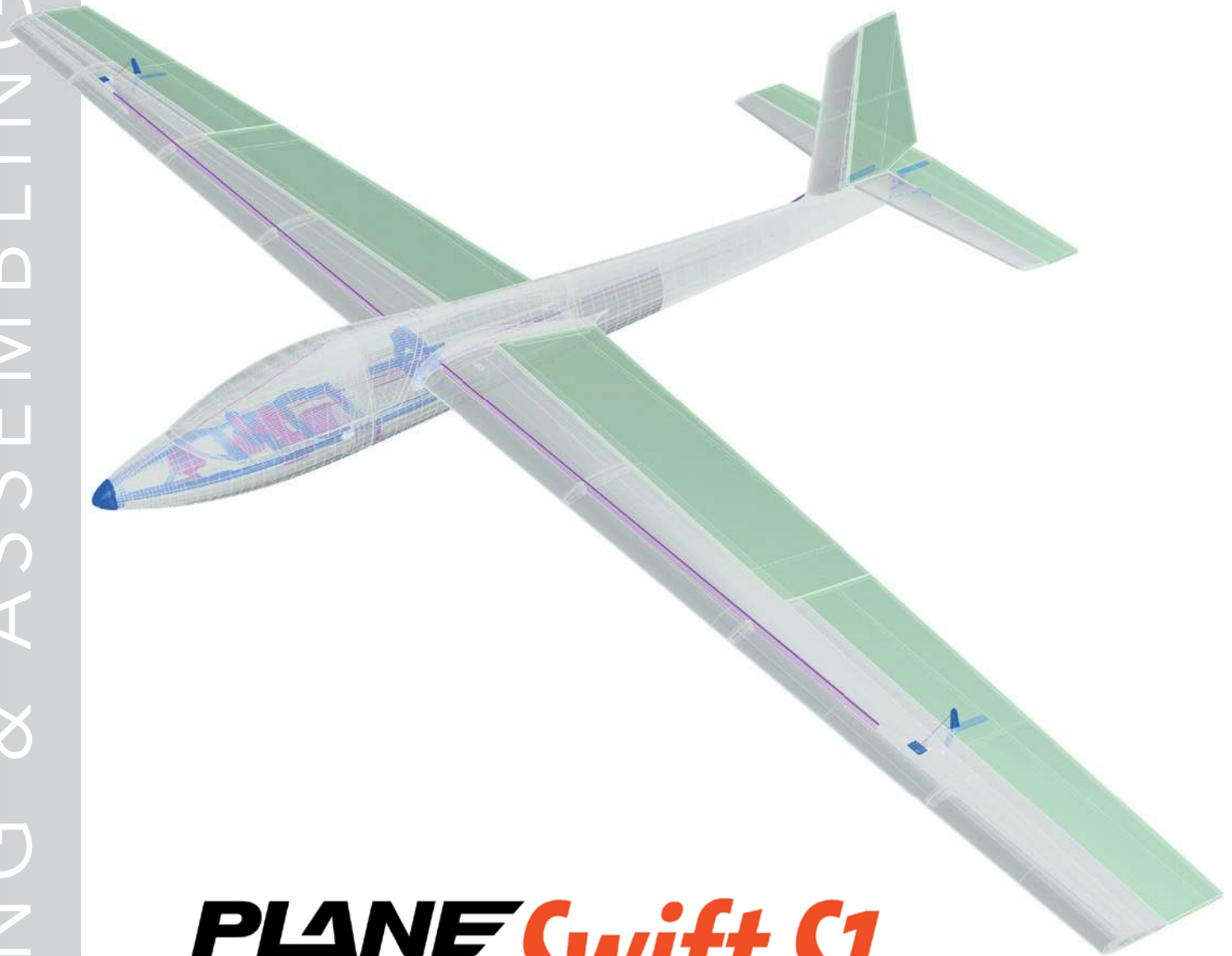# PLANE PRINT

PLANE PRINT *Swift S1*
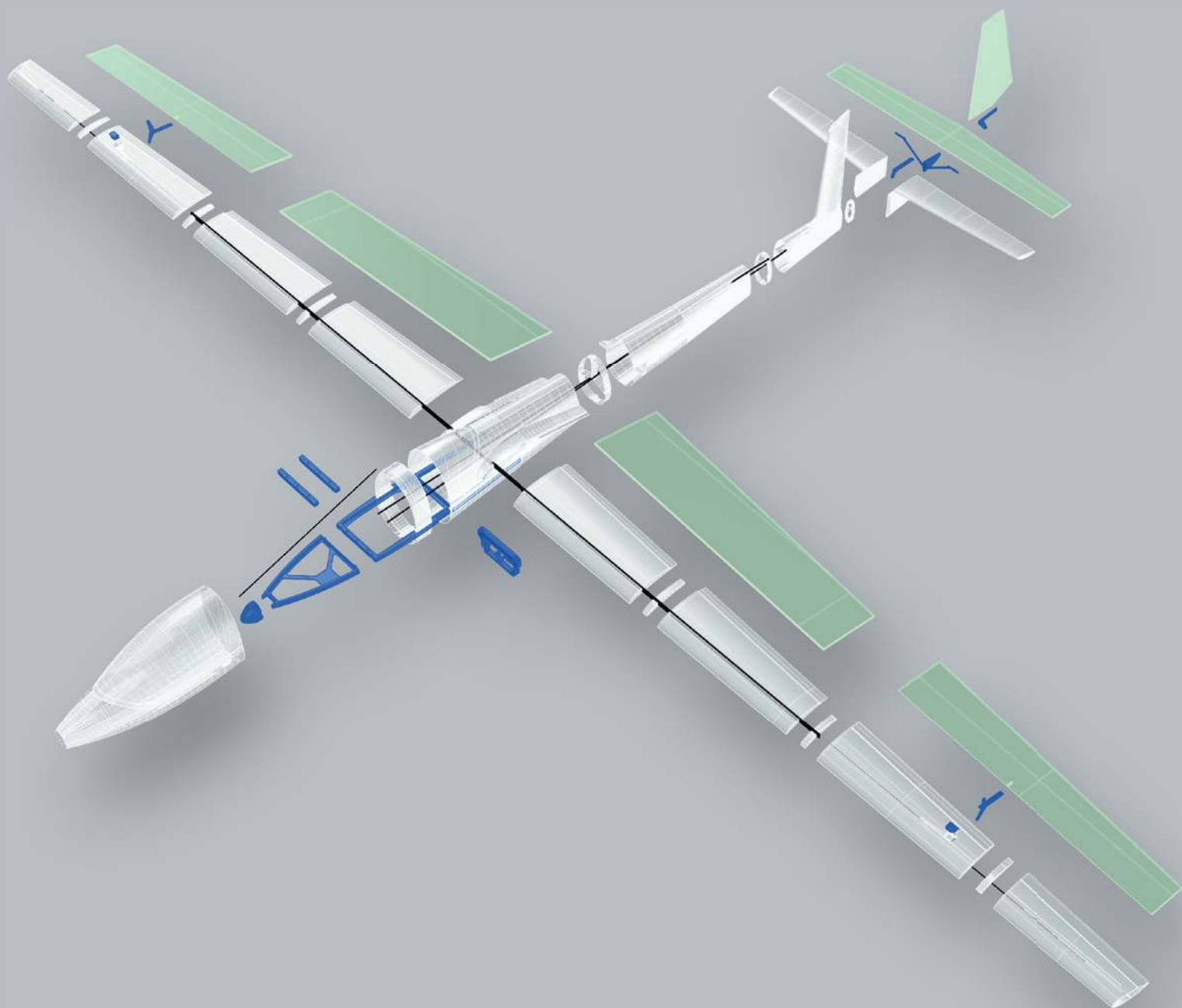
Ultra-lightweight indoor and park glider

www.planeprint.com

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

PLANE PRINT *Swift S1*

LW-PLA   PLA   TPU   CARBON   FOAM

RC Components

RECEIVER   **4 Channel** (light indoor receiver)

BATTERY   **Micro Receiver battery** (like E-Akku Team Champion 4 Würfel 4.8/150 Graupner SJ – 18 grams)

SERVOS   **4 Micro or Nano Servos** (3 without Tow Function)

for example: • Hitec HS 40 Eco Servo 4,8g
                 • Diamond D47
                 • PLANET-HOBBY ECO PLUS
                 • Stemedu Micro 3.7g Servo GH-S37D
                 • PICCO 8 DIGITAL SERVO

Required accessoires – basic equipment

Links to recommended accessories can be found on
www.planeprint.com/swift (scroll down)

- **LW-PLA (cannot be replaced by PLA!)**, ~100 grams
- **PLA** or **Tough PLA**, ~20 grams

- CA super glue (liquid and medium)
- CA activator
- Foam board 3 mm **uncoated!***
  (or Foam like Depron, Styropor or EPP, you can see how much you need on the next page
  – Such boards are also available separately in model shops)
- UHU POR glue (or another glue suitable for Depron)
- Carbon rod Ø1*1000mm, 3 pieces
- Carbon fiber strip (flat profile) 1*5*1000mm, 1 piece
- a few short pieces of thin steel wire, approx. Ø0.6 mm (for the linkages)
- thin smooth nylon silk Ø approx. 0.2 to 0.3 mm (Fishing line)
- Adhesive tape
- Self adhesive velcro tape

* These parts cannot be printed for weight reasons,
   LW PLA is much heavier than foam.

Cutting template for the Depron parts

Print out these two pages on A4 paper, cut them along the red dotted line and tape the pages together exactly. Then cut out the templates for the wing, ailerons, elevator and rudder. Fix them to the Depron board and cut **two pieces from each (aileron and wing) and one rudder and elevator**.

IMPORTANT: the print must be set to 100% page size, so that the size fits exactly!

Wing part (twice)
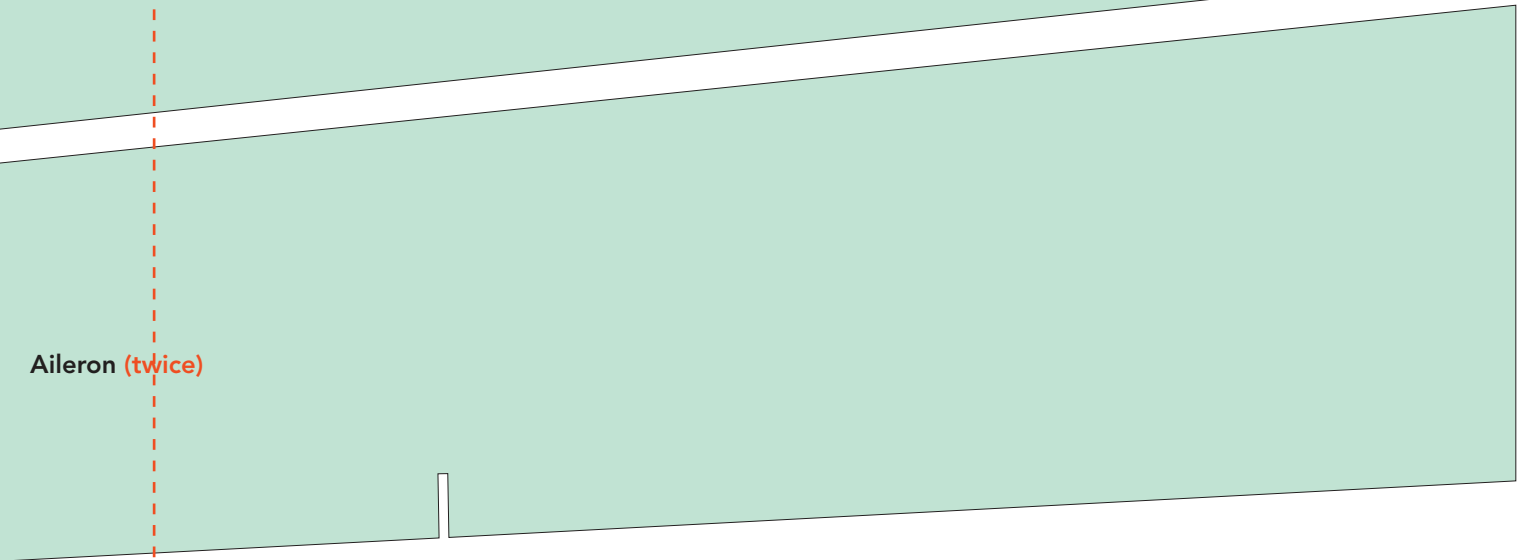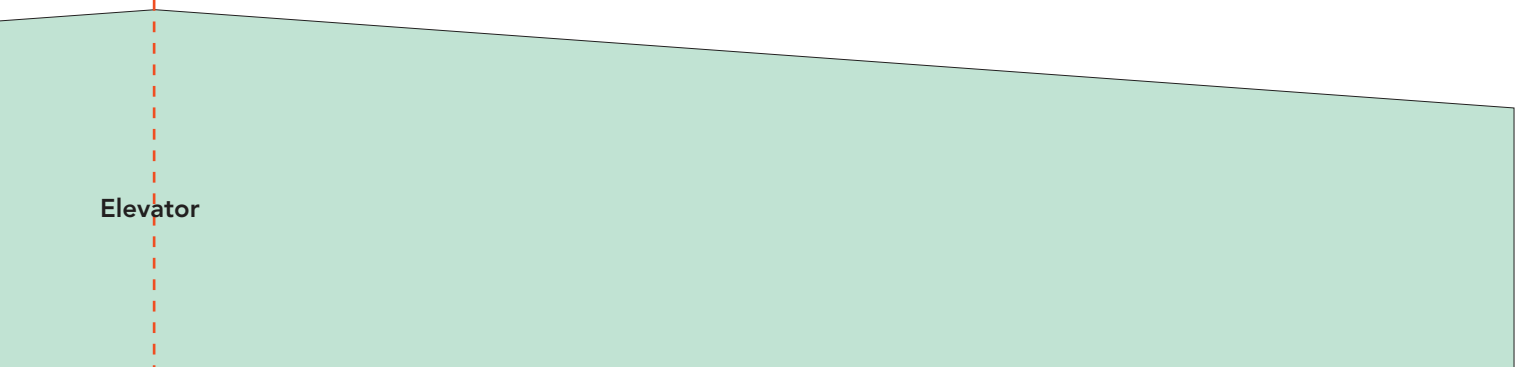
Aileron (twice)
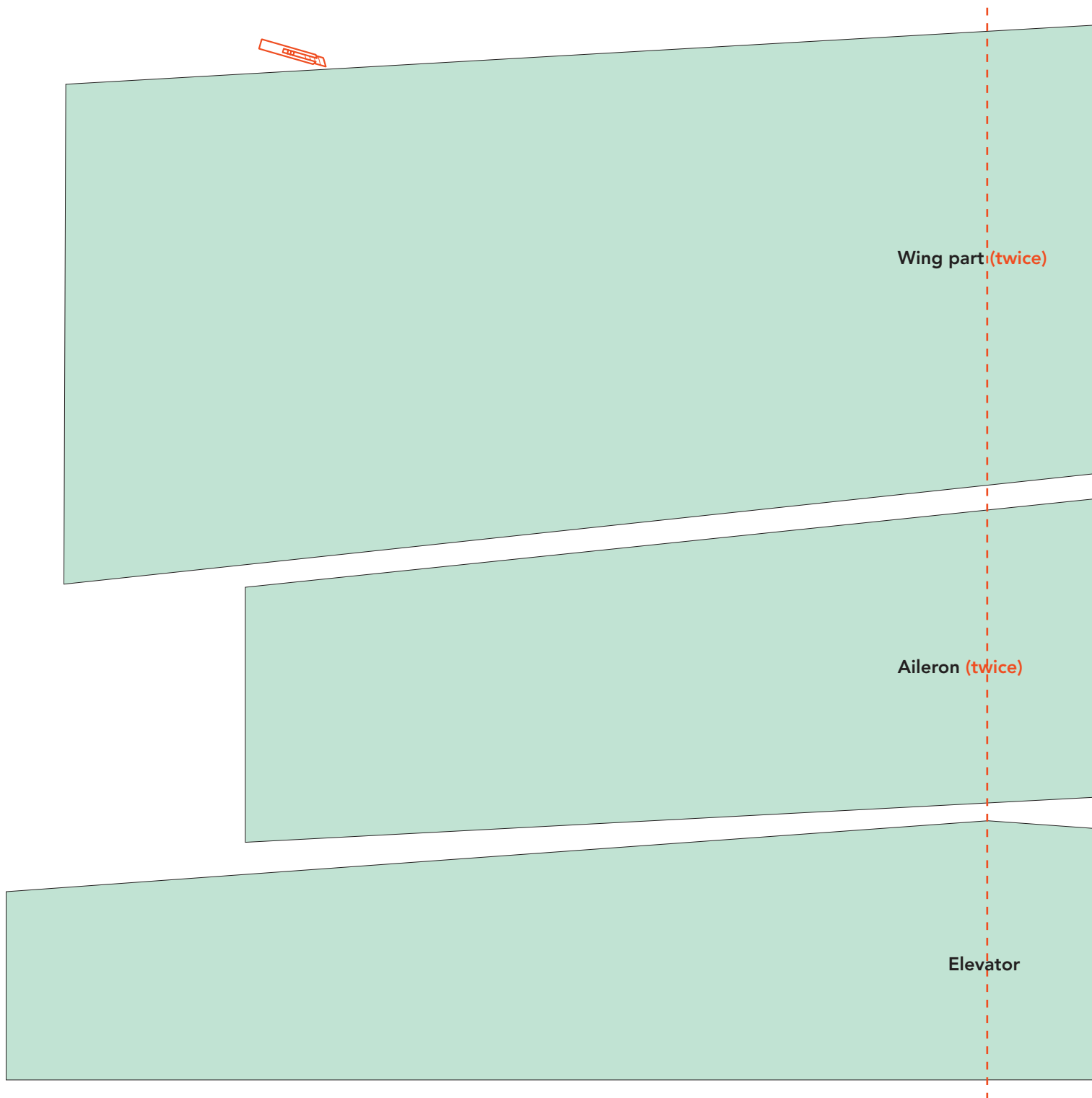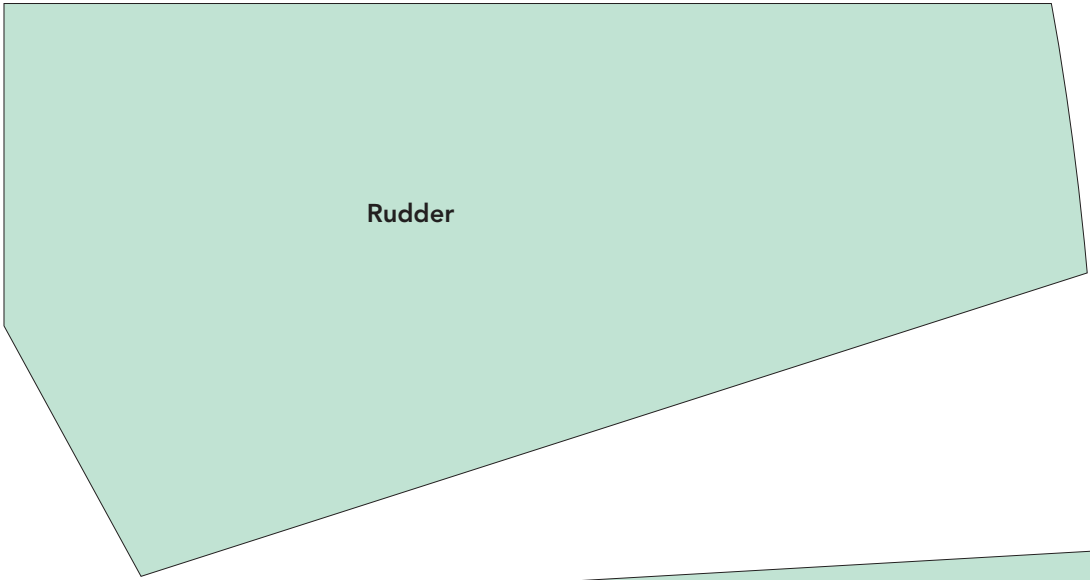
Elevator

Rudder
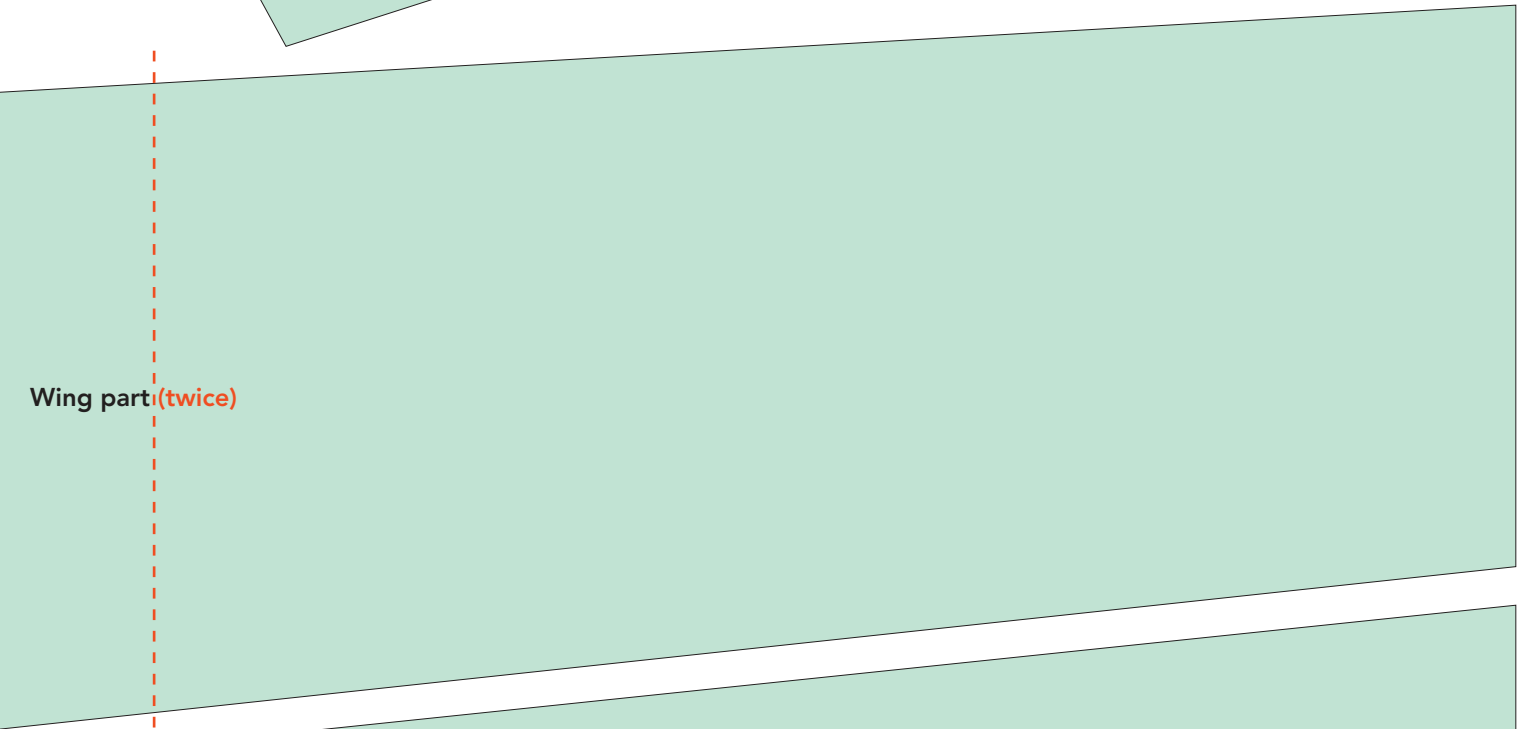
Wing part (twice)

Aileron (twice)

Elevator

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

For this model you need the following profile:
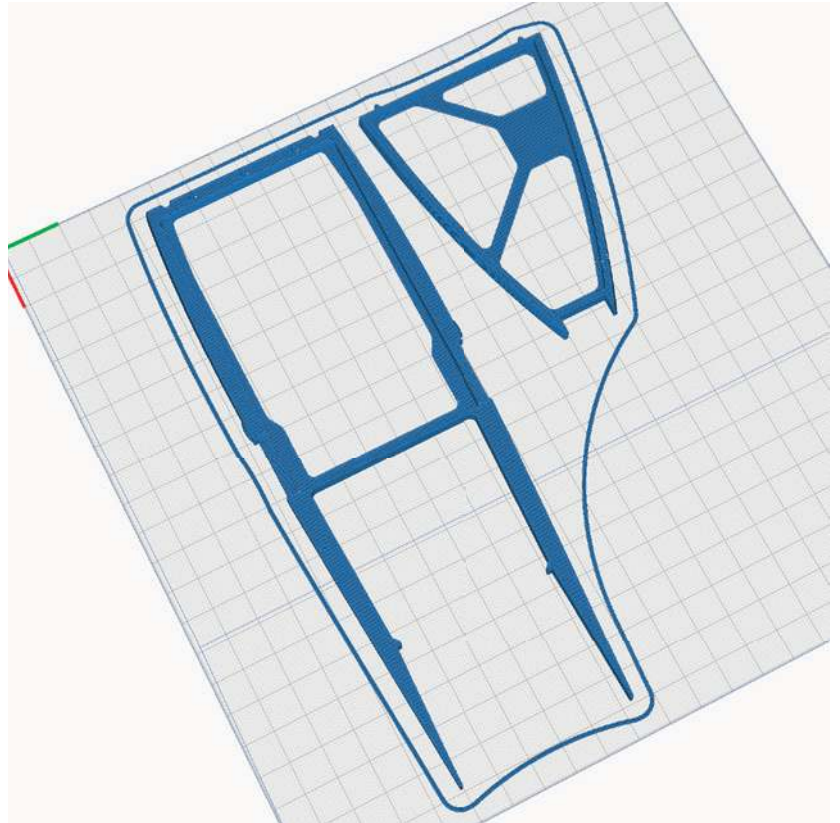
PROFILE P2_Hollowbody PLA or Tough PLA

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

P2_Frame–S1.stl

MATERIAL   PLA, Weight: ~ 9 g
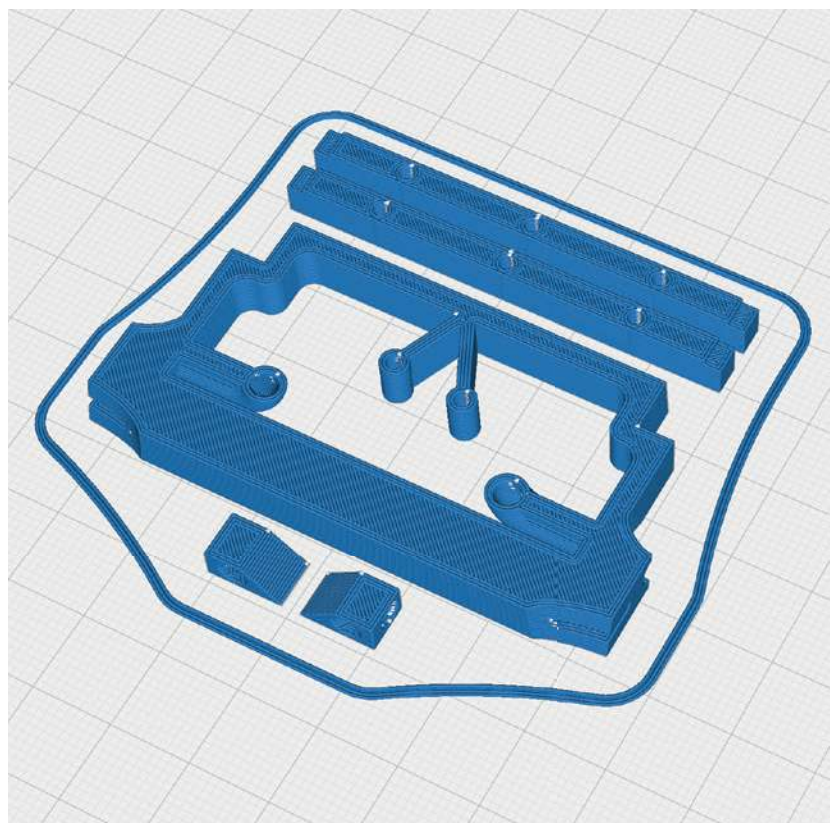
ADDITIONAL SETTINGS

None required

P2_Parts 1–S1.stl

MATERIAL   PLA, Weight: ~ 7 g

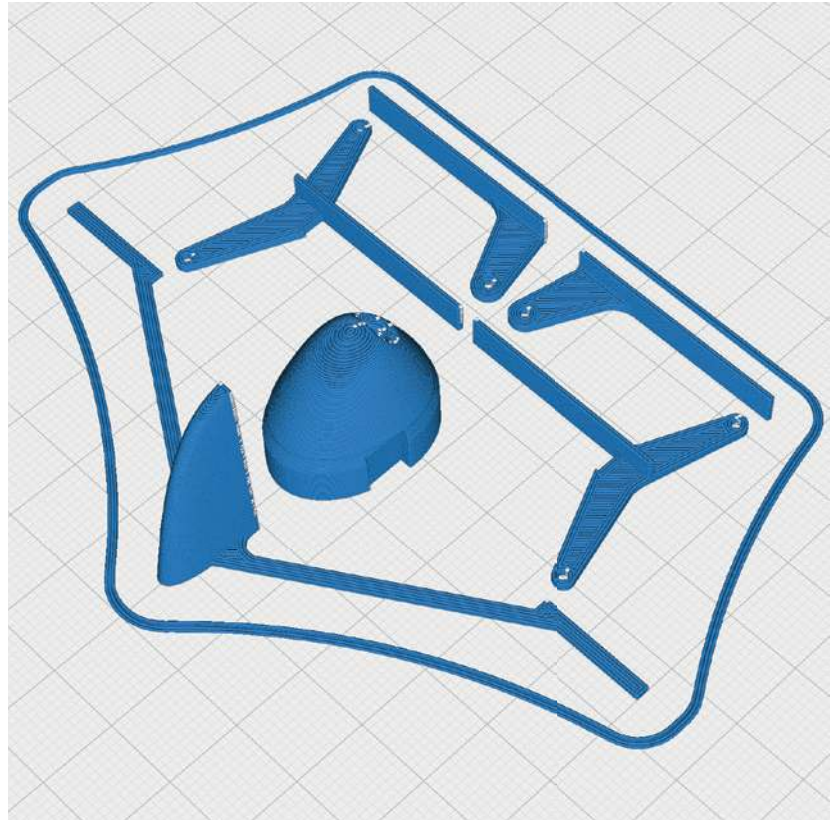**ADDITIONAL SETTINGS**

None required

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

P2_Parts 2–S1.stl

`MATERIAL`   PLA, Weight: ~ 4 g
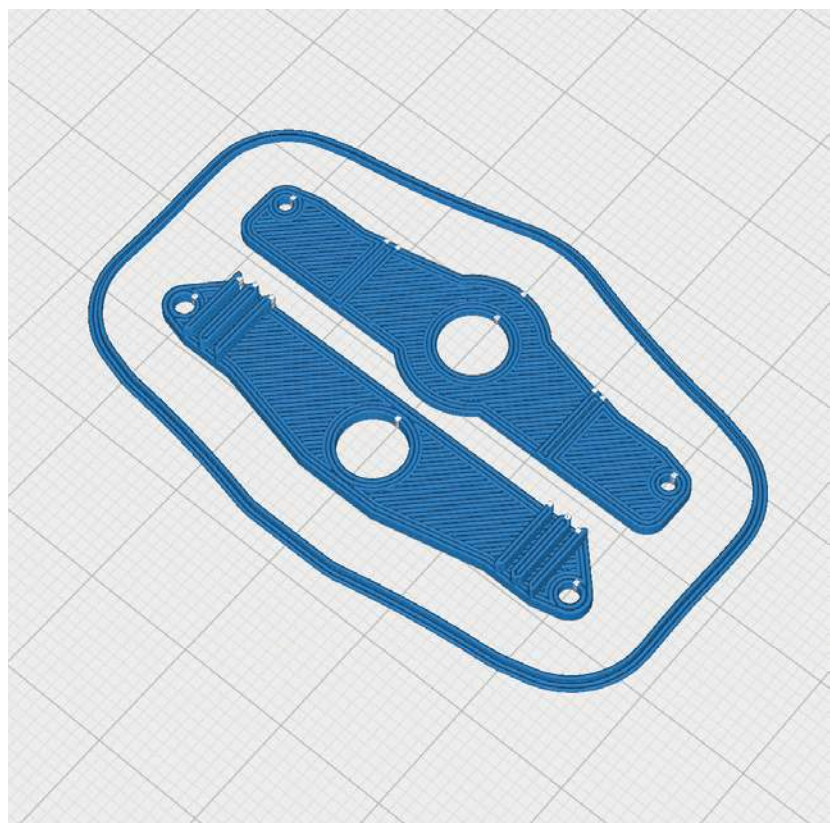
`ADDITIONAL SETTINGS`

None required

P2_Servo lever.stl

`MATERIAL`   PLA, Weight: ~ 1 g

`ADDITIONAL SETTINGS`

None required

SPIRALIZE/VASE MODE – Light-Weight LW-PLA!

The following parts must be sliced with the Funktion **Spiralize Outer Contour** (Cura) or **Spiral Vase** (Prusa Slicer). For these parts, only the outer wall (1 line/perimeter) is printed without Z-seam, no top and bottom layers. **It is essential to print these parts with LW-PLA!**

Basic settings for LW-PLA: Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment!
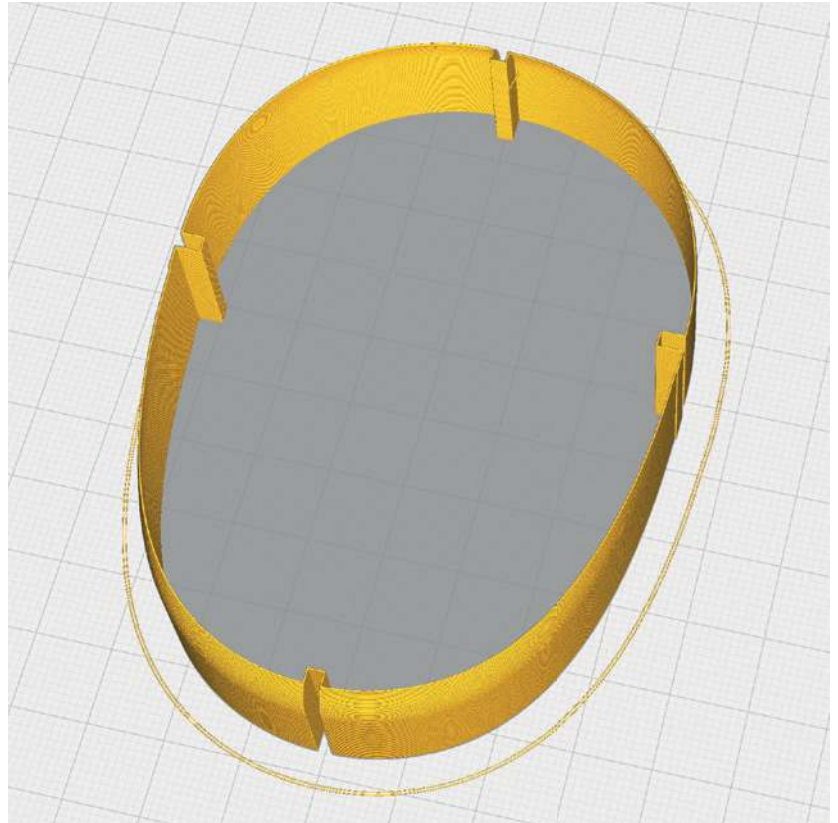
V_C1-2–S1.stl

MATERIAL **LW-PLA**, ~ 1 g*

*Weighed (approximate guideline)

SETTINGS

• Layer Height: 0.25 mm
• Wall Line Count/Perimeters: 1
• Spiralize Outer Contour (Cura)/
  Spiral Vase (Prusa)
• Top and Bottom Layers: 0

• Flow, Temp and Speed suitable for LW PLA

V_C2-3–S1.stl

MATERIAL **LW-PLA**, ~ 1 g*

*Weighed (approximate guideline)

SETTINGS

• Layer Height: 0.25 mm
• Wall Line Count/Perimeters: 1
• Spiralize Outer Contour (Cura)/
  Spiral Vase (Prusa)
• Top and Bottom Layers: 0

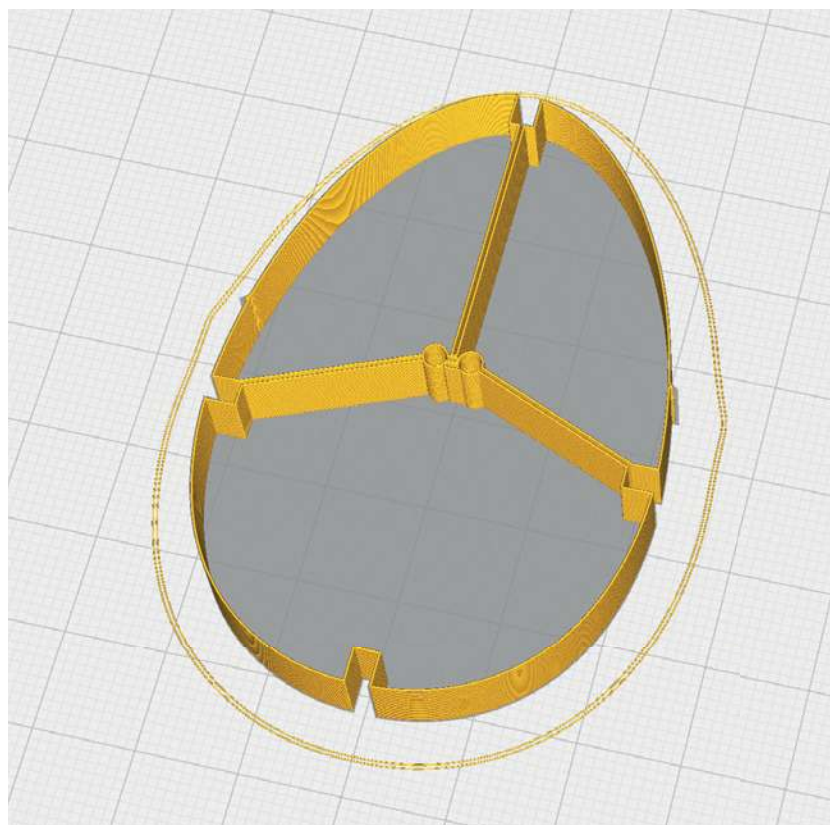• Flow, Temp and Speed suitable for LW PLA

SPIRALIZE/VASE MODE – Light-Weight LW-PLA!

The following parts must be sliced with the Funktion **Spiralize Outer Contour** (Cura) or **Spiral Vase** (Prusa Slicer). For these parts, only the outer wall (1 line/perimeter) is printed without Z-seam, no top and bottom layers.
It is essential to print these parts with LW-PLA!

Basic settings for LW-PLA: Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment!
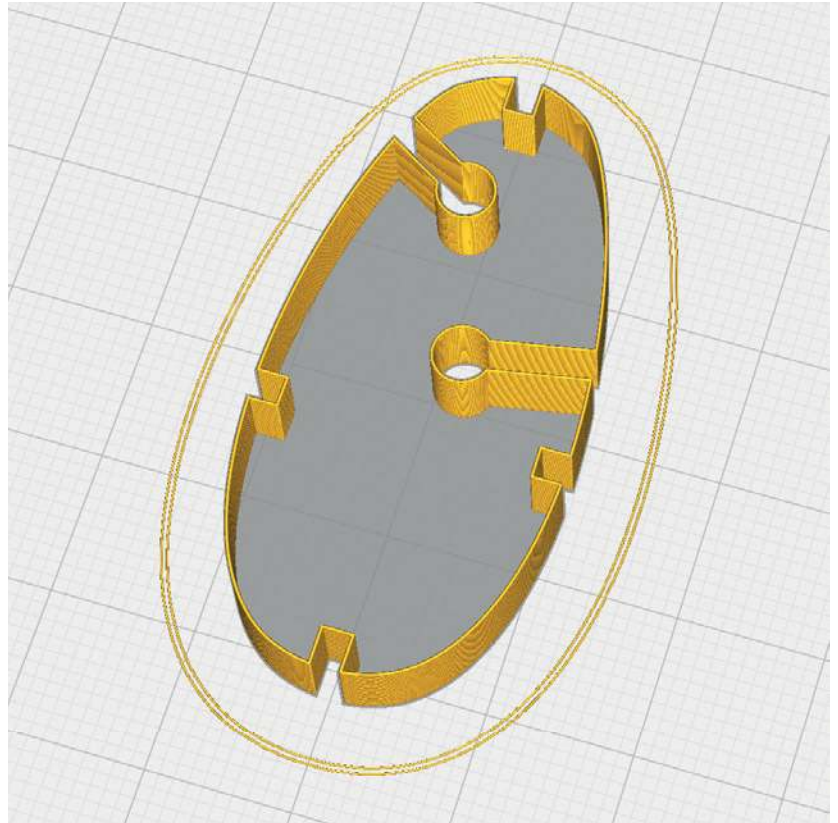
V_C3-4–S1.stl

MATERIAL   **LW-PLA**, ~ 1 g*
*Weighed (approximate guideline)

SETTINGS

- Layer Height: 0.25 mm
- Wall Line Count/Perimeters: 1
- Spiralize Outer Contour (Cura)/
  Spiral Vase (Prusa)
- Top and Bottom Layers: 0

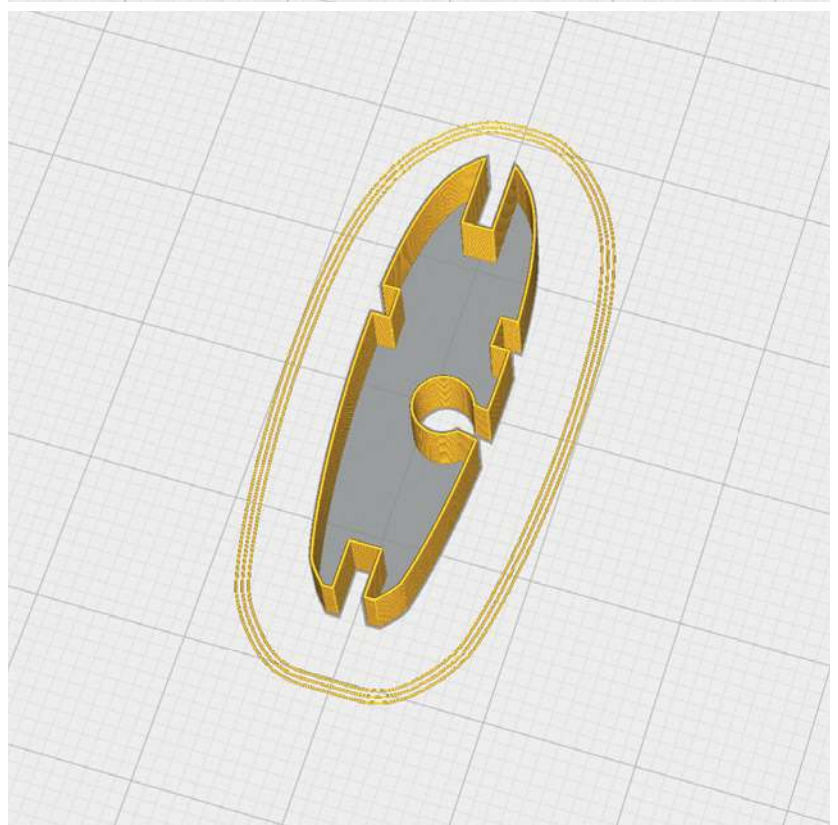- Flow, Temp and Speed suitable for LW PLA

V_C4-5–S1.stl

MATERIAL   **LW-PLA**, ~ 1 g*
*Weighed (approximate guideline)

SETTINGS

- Layer Height: 0.25 mm
- Wall Line Count/Perimeters: 1
- Spiralize Outer Contour (Cura)/
  Spiral Vase (Prusa)
- Top and Bottom Layers: 0

- Flow, Temp and Speed suitable for LW PLA

SPIRALIZE/VASE MODE – Light-Weight LW-PLA!

The following parts must be sliced with the Funktion **Spiralize Outer Contour** (Cura) or **Spiral Vase** (Prusa Slicer). For these parts, only the outer wall (1 line/perimeter) is printed without Z-seam, no top and bottom layers. **It is essential to print these parts with LW-PLA!**

Basic settings for LW-PLA: Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment!

V_Fuselage 1–S1.stl

MATERIAL **LW-PLA**, ~ 10 g*

*Weighed (approximate guideline)

SETTINGS

• Layer Height: 0.25 mm
• Wall Line Count/Perimeters: 1
• Spiralize Outer Contour (Cura)/
  Spiral Vase (Prusa)
• Top and Bottom Layers: 0
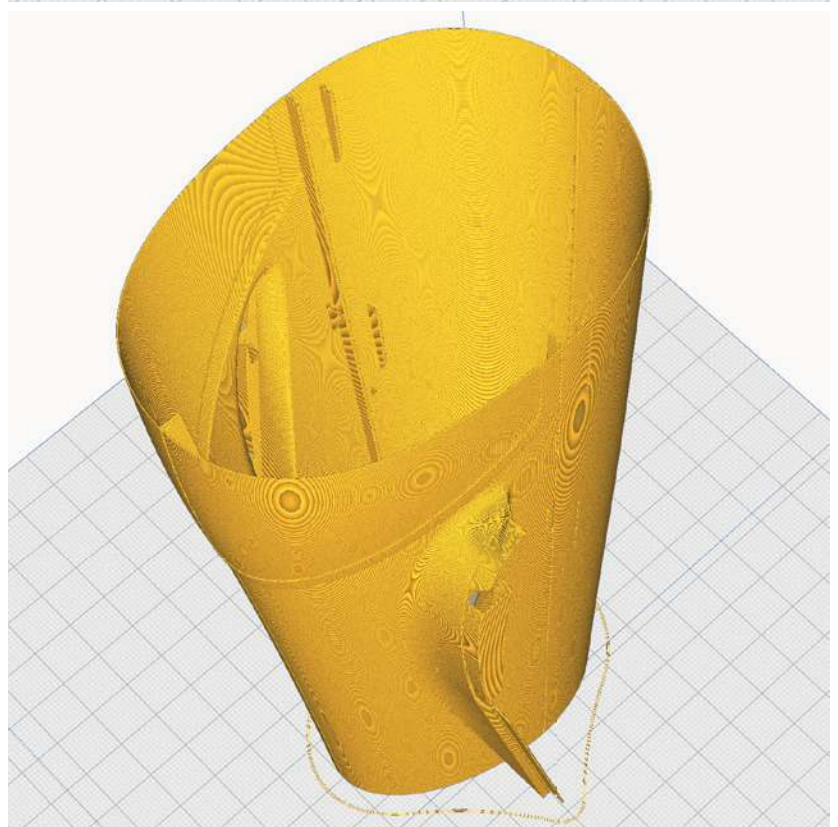
• Flow, Temp and Speed suitable for LW PLA

V_Fuselage 2–S1.stl

MATERIAL **LW-PLA**, ~ 13 g*

*Weighed (approximate guideline)

SETTINGS

• Layer Height: 0.25 mm
• Wall Line Count/Perimeters: 1
• Spiralize Outer Contour (Cura)/
  Spiral Vase (Prusa)
• Top and Bottom Layers: 0

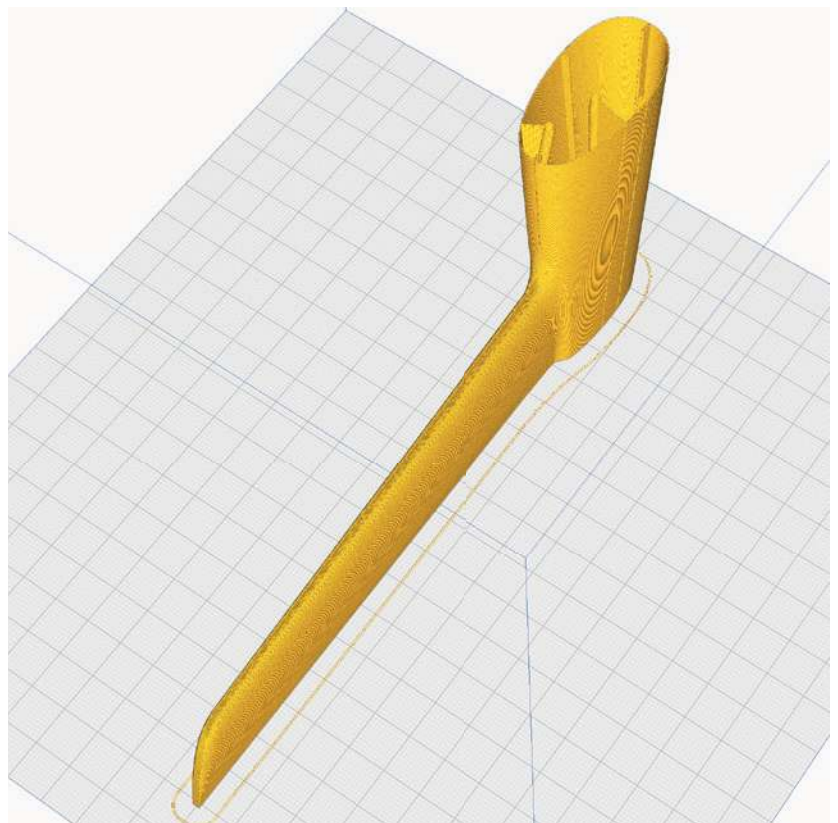• Flow, Temp and Speed suitable for LW PLA

SPIRALIZE/VASE MODE – Light-Weight LW-PLA!

The following parts must be sliced with the Funktion **Spiralize Outer Contour** (Cura) or **Spiral Vase** (Prusa Slicer). For these parts, only the outer wall (1 line/perimeter) is printed without Z-seam, no top and bottom layers.
It is essential to print these parts with LW-PLA!

Basic settings for LW-PLA: Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment!
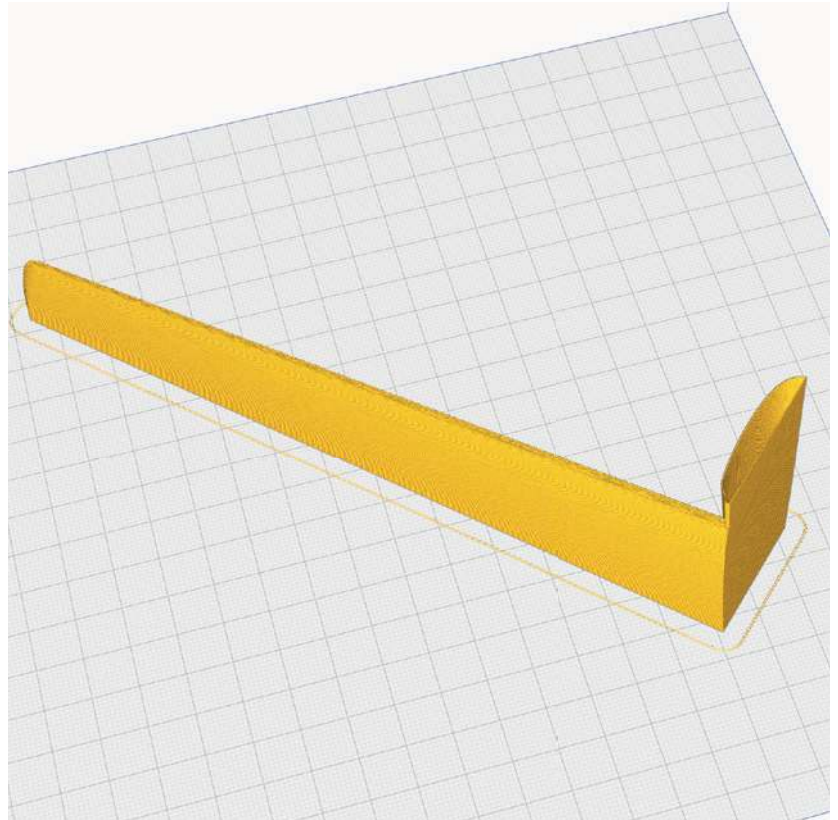
V_Fuselage 3–S1.stl

MATERIAL **LW-PLA**, ~ 8 g*
*Weighed (approximate guideline)

SETTINGS

- Layer Height: 0.25 mm
- Wall Line Count/Perimeters: 1
- Spiralize Outer Contour (Cura)/
  Spiral Vase (Prusa)
- Top and Bottom Layers: 0

- Flow, Temp and Speed suitable for LW PLA

V_Fuselage 4–S1.stl

MATERIAL **LW-PLA**, ~ 6 g*
*Weighed (approximate guideline)

SETTINGS

- Layer Height: 0.25 mm
- Wall Line Count/Perimeters: 1
- Spiralize Outer Contour (Cura)/
  Spiral Vase (Prusa)
- Top and Bottom Layers: 0

- Flow, Temp and Speed suitable for LW PLA

SPIRALIZE/VASE MODE – Light-Weight LW-PLA!

The following parts must be sliced with the Funktion **Spiralize Outer Contour** (Cura) or **Spiral Vase** (Prusa Slicer). For these parts, only the outer wall (1 line/perimeter) is printed without Z-seam, no top and bottom layers. **It is essential to print these parts with LW-PLA!**

Basic settings for LW-PLA: Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment!
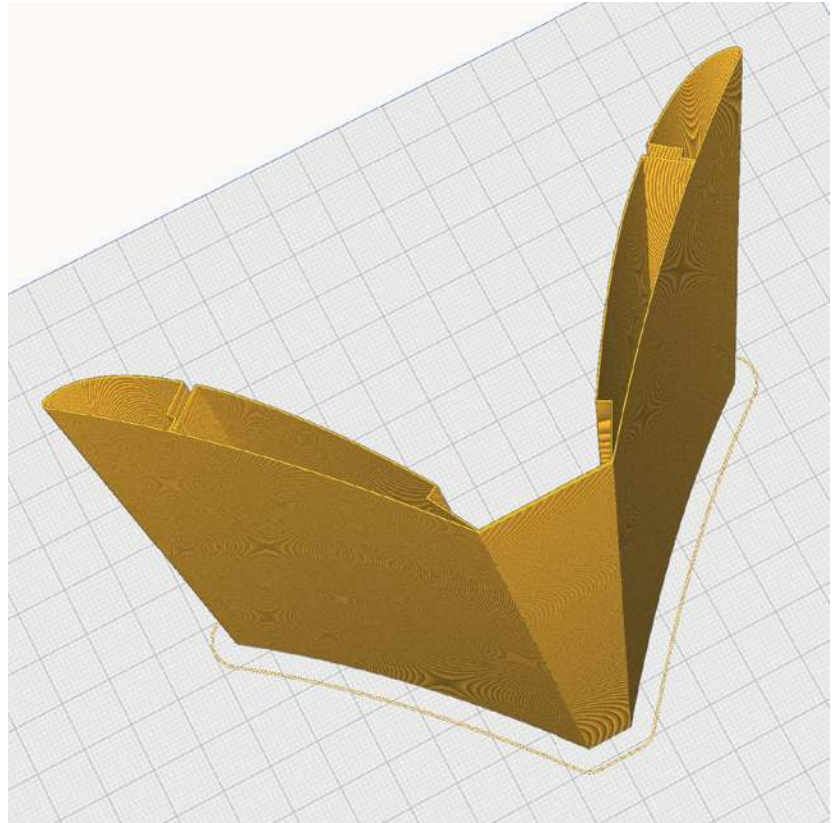
V_Fuselage 5 L–S1.stl and V_Fuselage 5 R–S1.stl

`MATERIAL` **LW-PLA**, ~ 4 g*
*Weighed (approximate guideline)

`SETTINGS`

- Layer Height: 0.25 mm
- Wall Line Count/Perimeters: 1
- Spiralize Outer Contour (Cura)/ Spiral Vase (Prusa)
- Top and Bottom Layers: 0

- Flow, Temp and Speed suitable for LW PLA

Wingconnect–S1.stl

`MATERIAL` **LW-PLA**, ~ 1 g*
*Weighed (approximate guideline)

`SETTINGS`

- Layer Height: 0.25 mm
- Wall Line Count/Perimeters: 1
- Spiralize Outer Contour (Cura)/ Spiral Vase (Prusa)
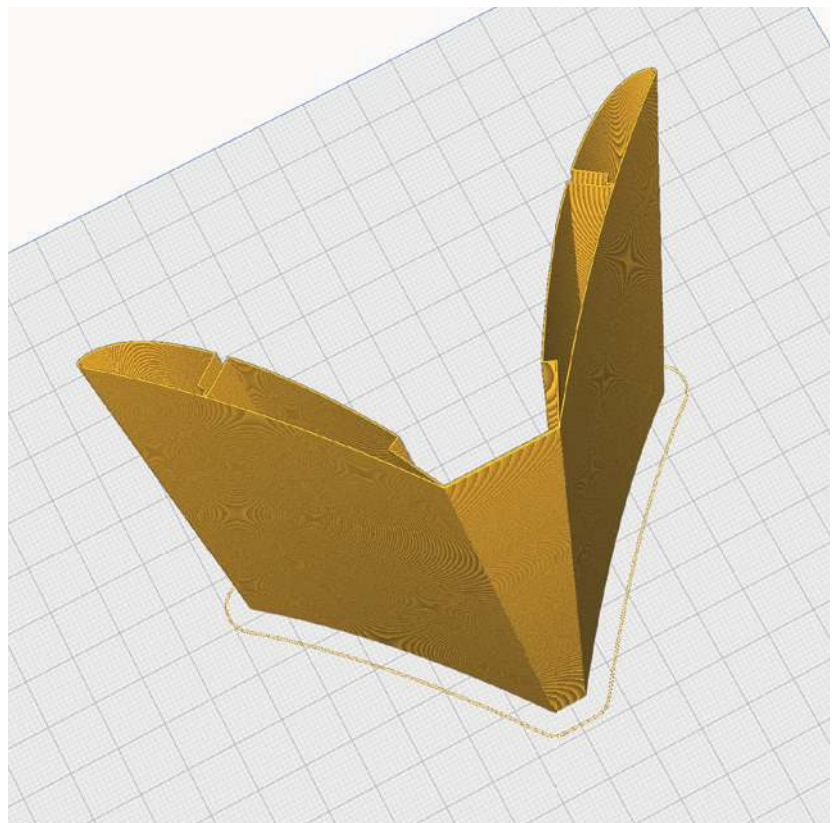- Top and Bottom Layers: 0

- Flow, Temp and Speed suitable for LW PLA

SPIRALIZE/VASE MODE – Light-Weight LW-PLA!

The following parts must be sliced with the Funktion **Spiralize Outer Contour** (Cura) or **Spiral Vase** (Prusa Slicer). For these parts, only the outer wall (1 line/perimeter) is printed without Z-seam, no top and bottom layers.
It is essential to print these parts with LW-PLA!

Basic settings for LW-PLA: Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment!
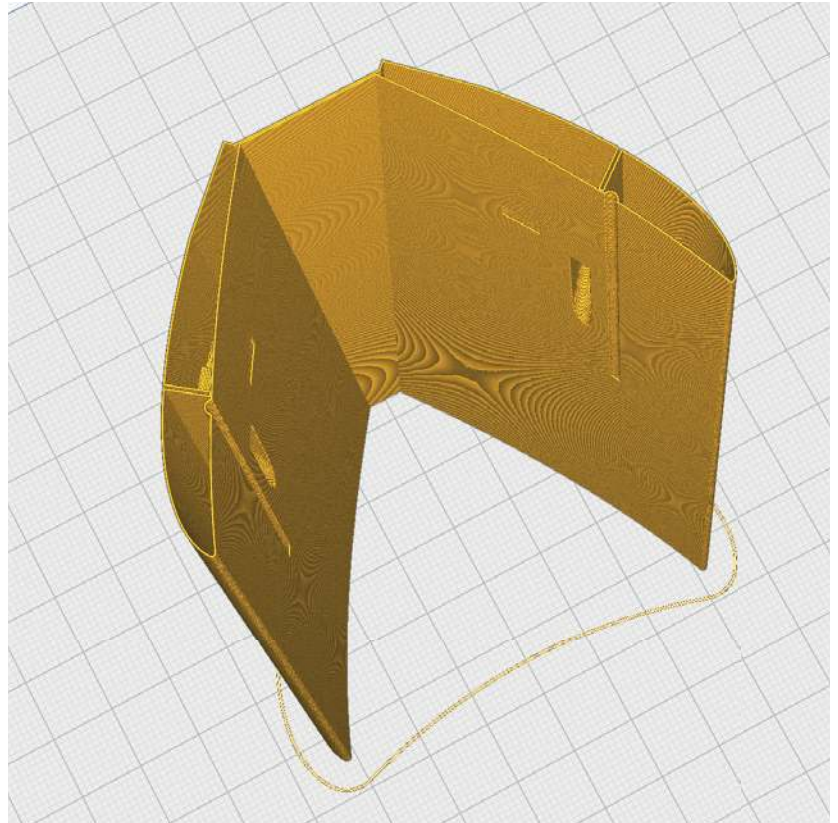
V_Wings 1–S1.stl

MATERIAL **LW-PLA**, ~ 15 g*

*Weighed (approximate guideline)

SETTINGS

- Layer Height: 0.25 mm
- Wall Line Count/Perimeters: 1
- Spiralize Outer Contour (Cura)/
  Spiral Vase (Prusa)
- Top and Bottom Layers: 0

- Flow, Temp and Speed suitable for LW PLA

V_Wings 2–S1.stl

MATERIAL **LW-PLA**, ~ 12 g*

*Weighed (approximate guideline)

SETTINGS

- Layer Height: 0.25 mm
- Wall Line Count/Perimeters: 1
- Spiralize Outer Contour (Cura)/
  Spiral Vase (Prusa)
- Top and Bottom Layers: 0

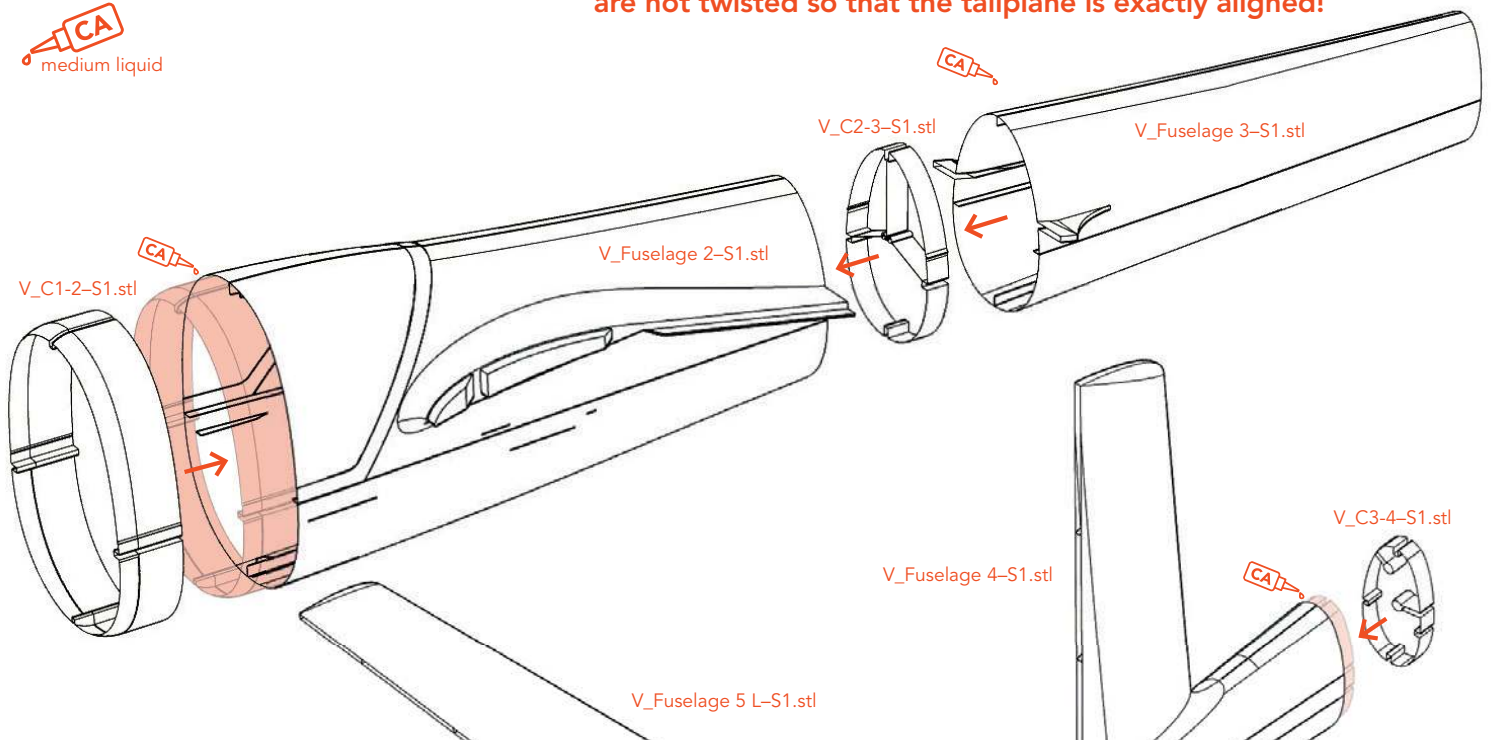- Flow, Temp and Speed suitable for LW PLA

SPIRALIZE/VASE MODE – Light-Weight LW-PLA!

The following parts must be sliced with the Funktion **Spiralize Outer Contour** (Cura) or **Spiral Vase** (Prusa Slicer). For these parts, only the outer wall (1 line/perimeter) is printed without Z-seam, no top and bottom layers. **It is essential to print these parts with LW-PLA!**

Basic settings for LW-PLA: Please follow the instructions in our **WINGTEST AND CALIBRATION TOOL** on our website for correct adjustment!

V_Wings 3–S1.stl

MATERIAL **LW-PLA**, ~ 11 g*
*Weighed (approximate guideline)

SETTINGS

- Layer Height: 0.25 mm
- Wall Line Count/Perimeters: 1
- Spiralize Outer Contour (Cura)/
  Spiral Vase (Prusa)
- Top and Bottom Layers: 0

- Flow, Temp and Speed suitable for LW PLA

V_Wings 4–S1.stl

MATERIAL **LW-PLA**, ~ 8 g*
*Weighed (approximate guideline)

SETTINGS

- Layer Height: 0.25 mm
- Wall Line Count/Perimeters: 1
- Spiralize Outer Contour (Cura)/
  Spiral Vase (Prusa)
- Top and Bottom Layers: 0

- Flow, Temp and Speed suitable for LW PLA
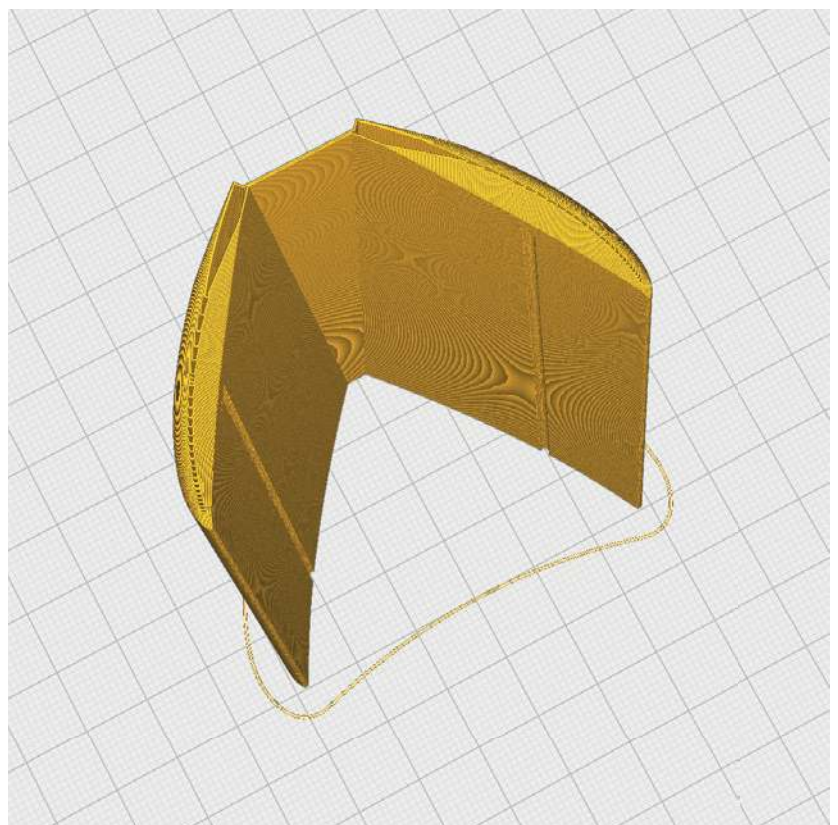
Fuselage assembly

First glue the positioning aids to one fuselage part, then stick the second one on top. **Make sure that the parts are not twisted so that the tailplane is exactly aligned!**

CA
medium liquid

V_C2-3–S1.stl

V_Fuselage 3–S1.stl

V_C1-2–S1.stl

V_Fuselage 2–S1.stl

V_C3-4–S1.stl

V_Fuselage 4–S1.stl

V_Fuselage 5 L–S1.stl

After you have removed the support, glue the two fuselage 5 parts together. Then mount it to the fuselage using the positioning aid V_C4-5–S1.stl.

V_C4-5–S1.stl

Remove support.
Please be careful with the knife!

V_Fuselage 5 R–S1.stl

Do **NOT** glue in these two places yet! Here you can finally align the horizontal stabilizer exactly parallel to the wing.

P2_Parts 2–S1.stl

Fuselage assembly

CA
medium liquid

P2_Parts 1–S1.stl

STEP 2
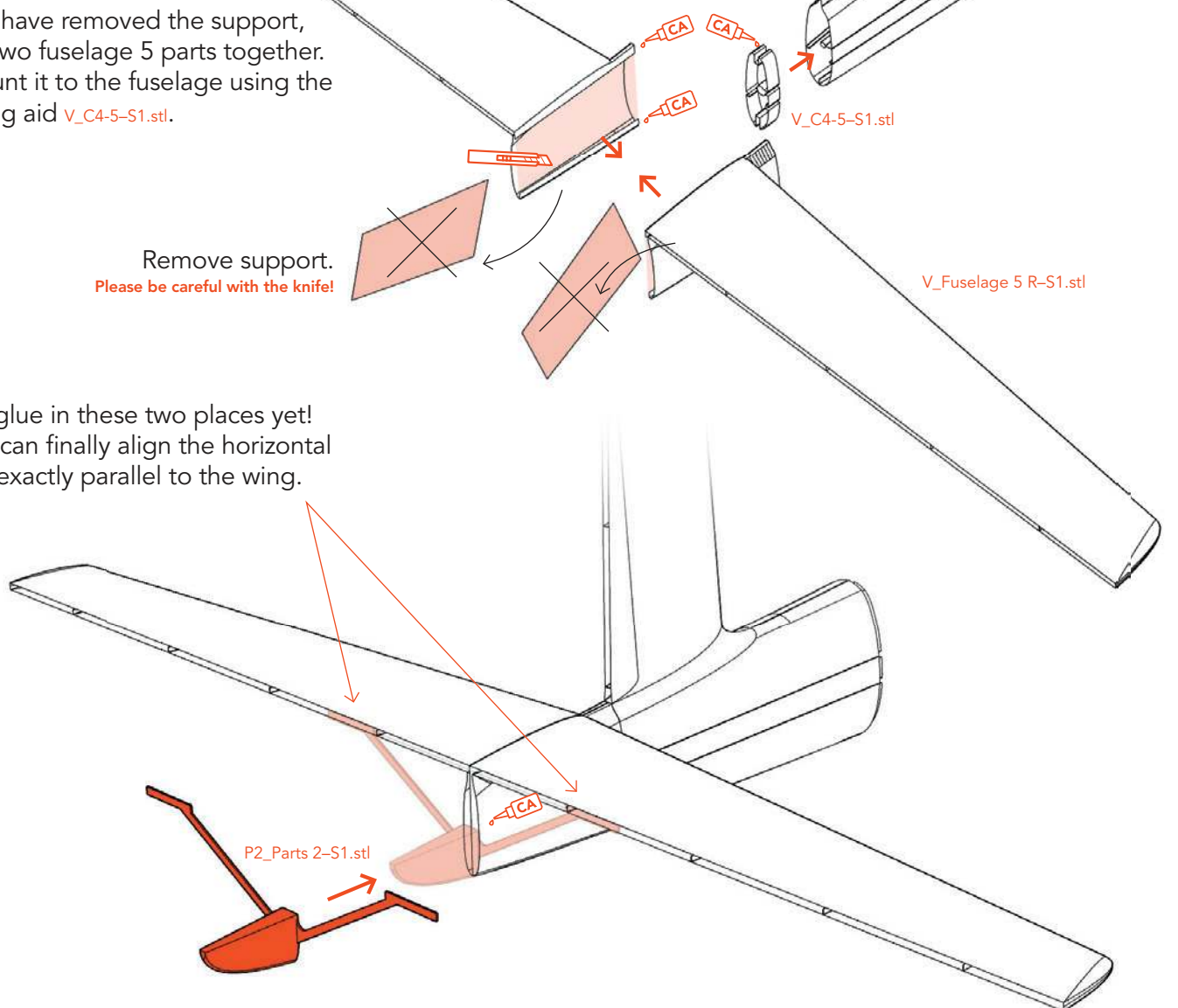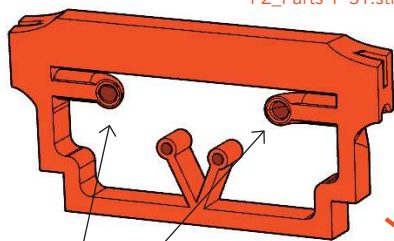
Insert these parts into the fuselage exactly as shown in the picture. Make sure that the **openings** are facing forward!

There are small bars in the fuselage that serve as a positioning aid.

When all the parts are correctly positioned, allow thin CA glue to run into the gaps until everything is well connected over a large area.
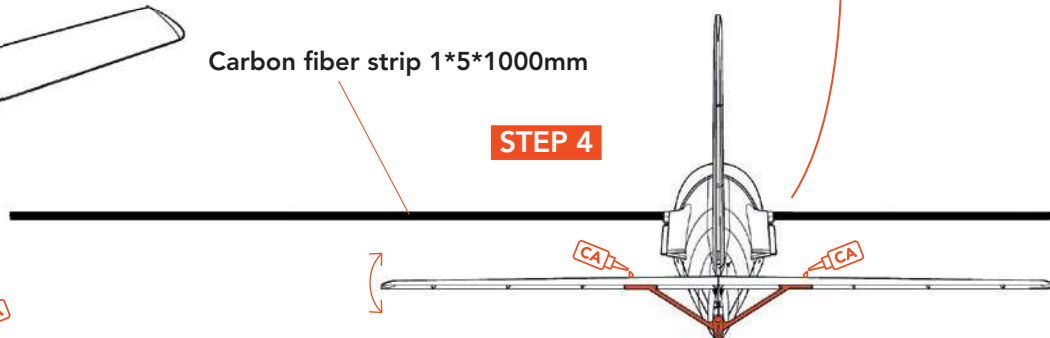
STEP 1

P2_Frame–S1.stl

Carefully open the holes for carbon fiber strip and linkage with the knife

Carbon fiber strip 1*5*1000mm

STEP 4

STEP 3

Insert the carbon fiber strip through fuselage 2, align the horizontal stabilizer parallel to it and glue the two struts in place.

Elevator/Rudder assembly

Cut these two edges at an angle of about 40°. You can also use sandpaper for this.
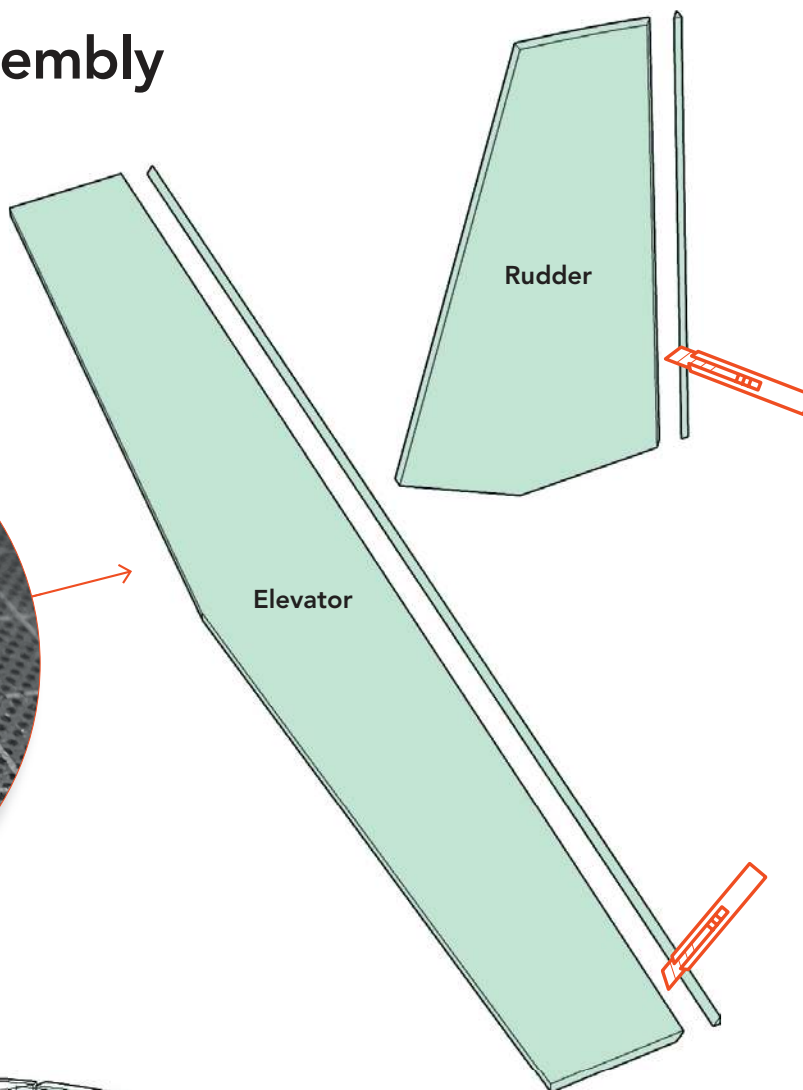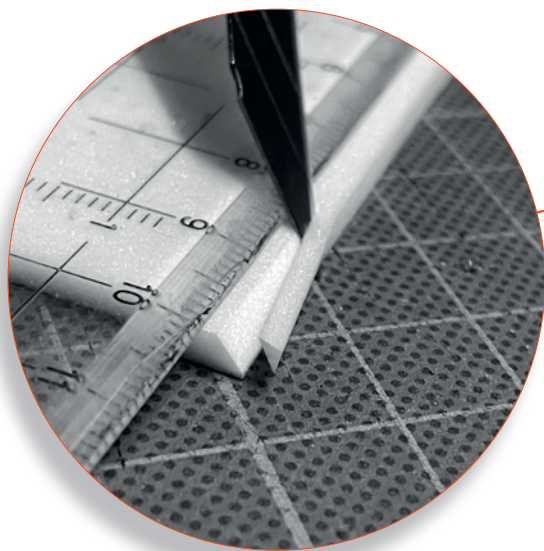
Rudder

Elevator

The hinges are simply made with thin adhesive tape. To ensure that the tape holds well, you should coat the adhesive area with UHU POR beforehand. When the glue is dry, first stick the tape to the elevator/rudder, then attach it to the fuselage.
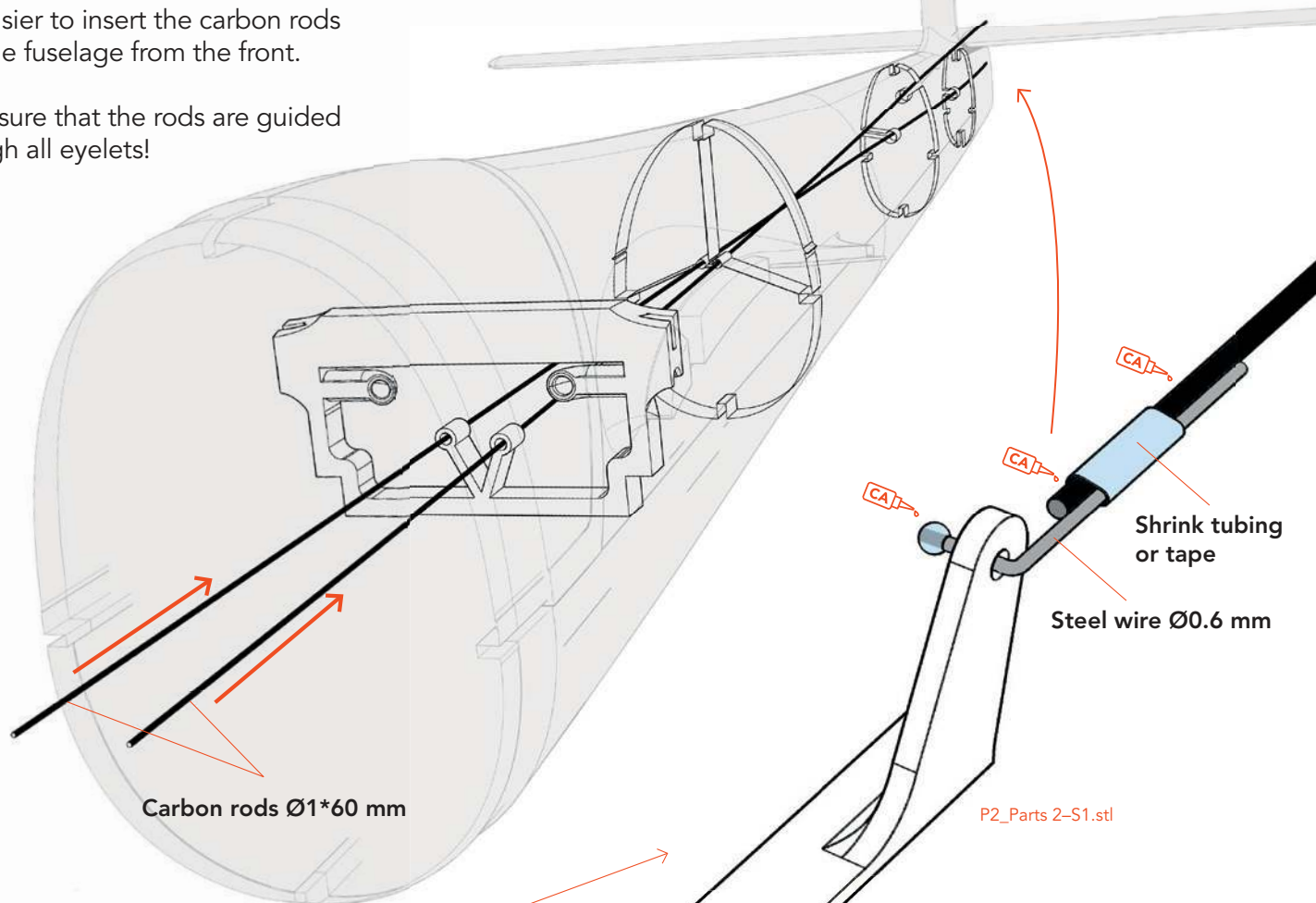
Leave a small gap so that the elevator/rudder can be moved easily.

STEP 2

STEP 1
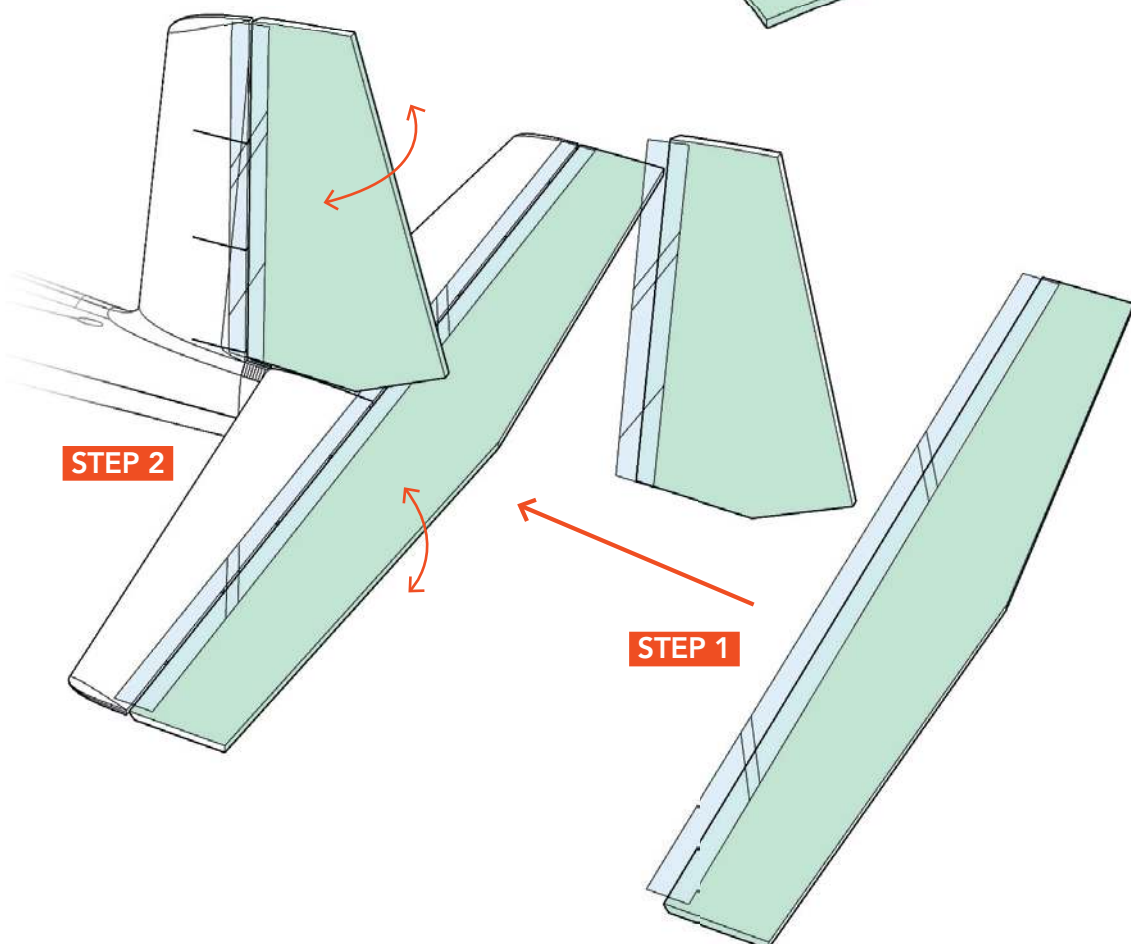
Elevator and rudder linkage

It is easier to insert the carbon rods into the fuselage from the front.

Make sure that the rods are guided through all eyelets!

Shrink tubing or tape

Steel wire Ø0.6 mm

Carbon rods Ø1*60 mm

P2_Parts 2–S1.stl

Prepare **two** linkages as shown here

Glue the control horns to the elevator and rudder. When positioning the control horn on the elevator, make sure that it cannot get caught on the fuselage when the elevator is moved downwards!

NOTE With Depron you must use **UHU POR** (or another glue suitable for Depron). Coat both sides and allow the glue to dry. Then position the control horn on the foam part.
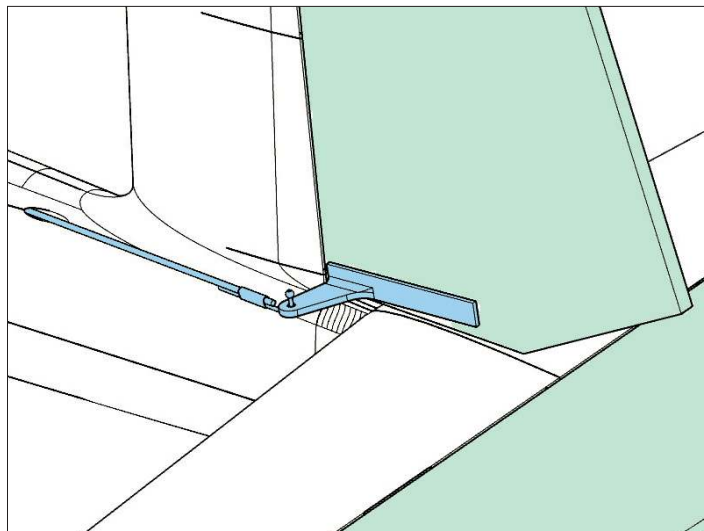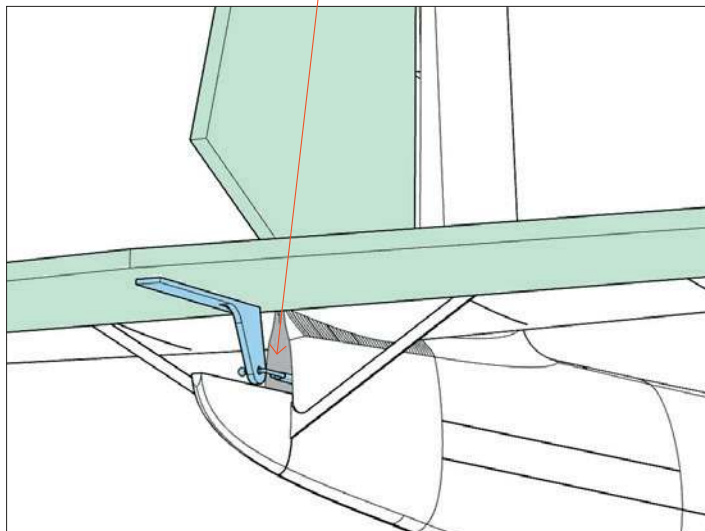
Servo mount

Mount the servos for the aileron, elevator and rudder as shown here.

Do not forget to zero the servos first.

Set the servos, elevator and rudder to neutral, shorten the carbon rods and then glue in the steel wire for the servo horn.

P2_Parts 1–S1.stl

Shrink tubing or tape

Steel wire Ø0.6 mm
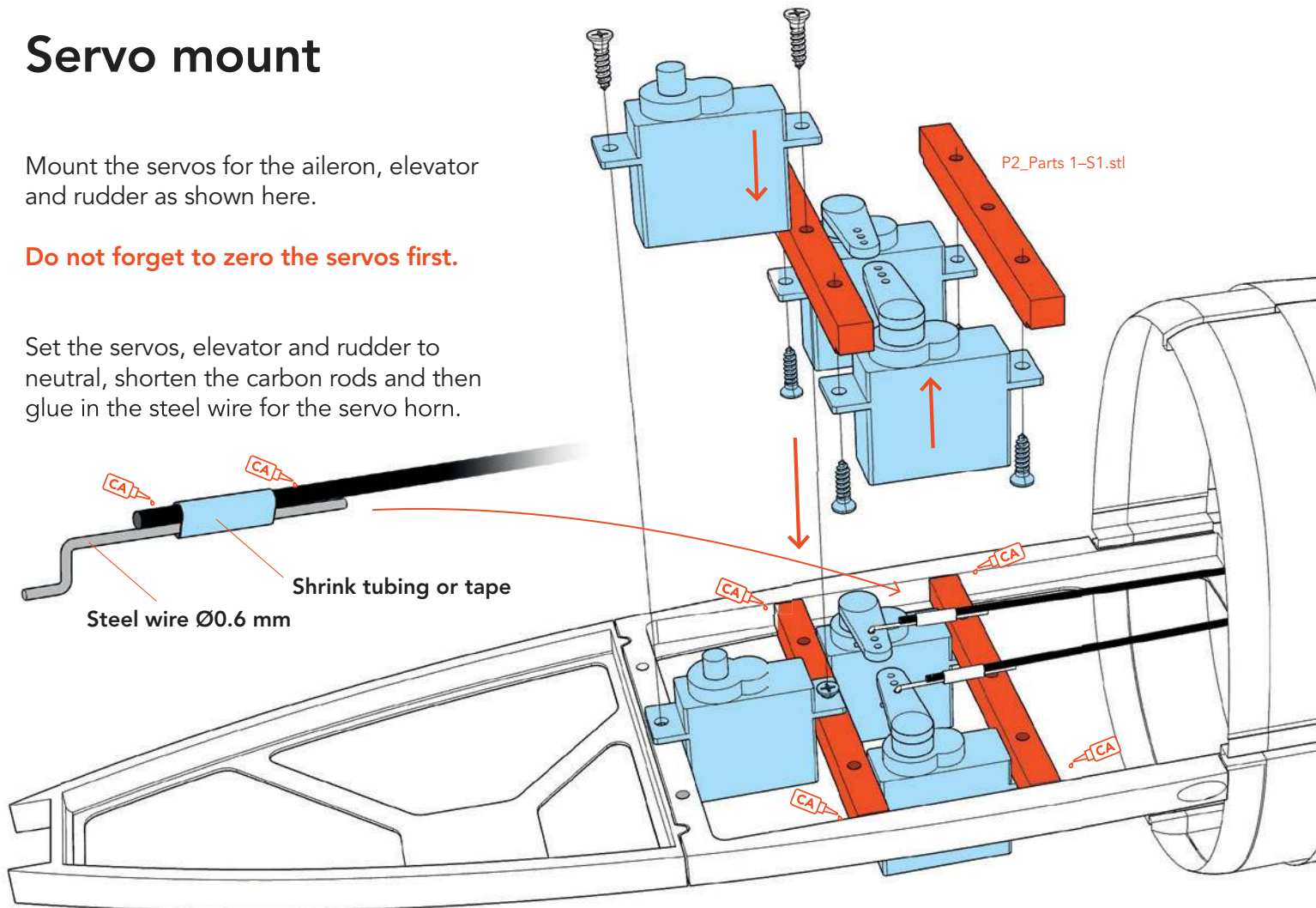
Tow coupling

View from the bottom side!

Steel wire Ø0.6 mm

Double-sided tape or CA glue

P2_Parts 2–S1.stl

Adjust the servo travel so that the wire does not block at the front!
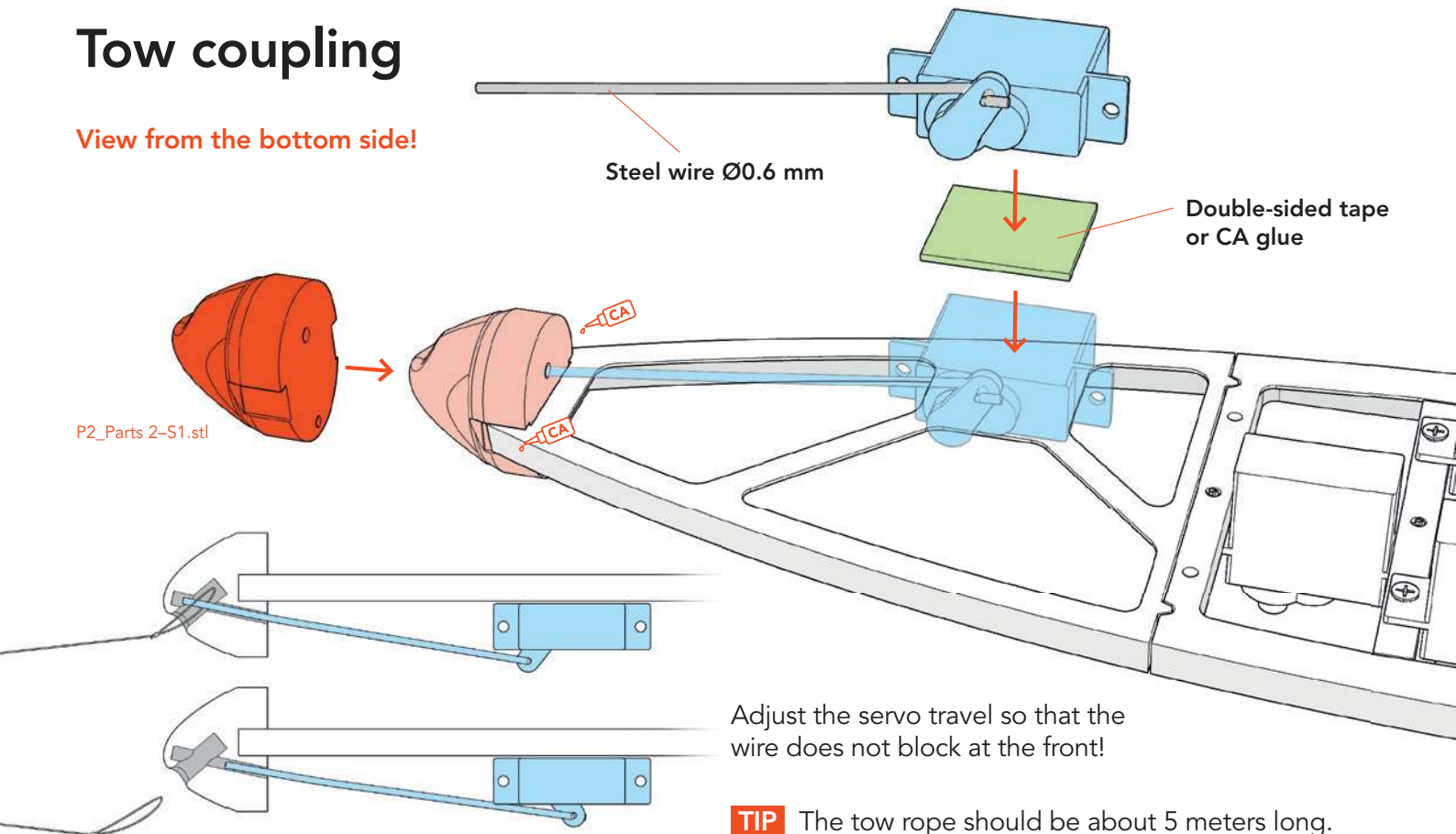
TIP The tow rope should be about 5 meters long.

Wing assembly

CA
medium liquid

First remove the support of all wing parts.

Please be careful with the knife!

V_Wings 1–S1.stl

CA

CA
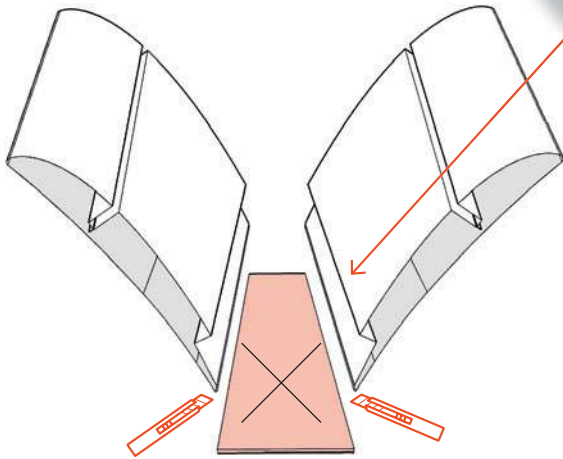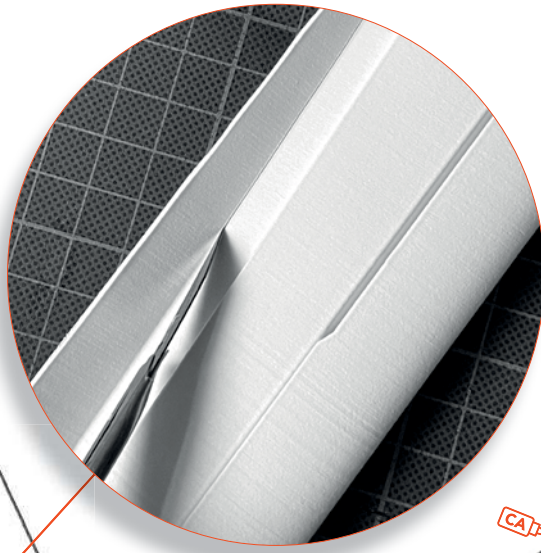
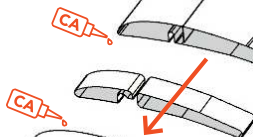V_Wingconnect–S1.stl

V_Wings 2–S1.stl

CA

CA
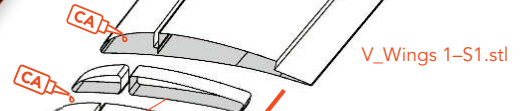
Place the wing parts on a flat plate and glue them together using the wing connectors.

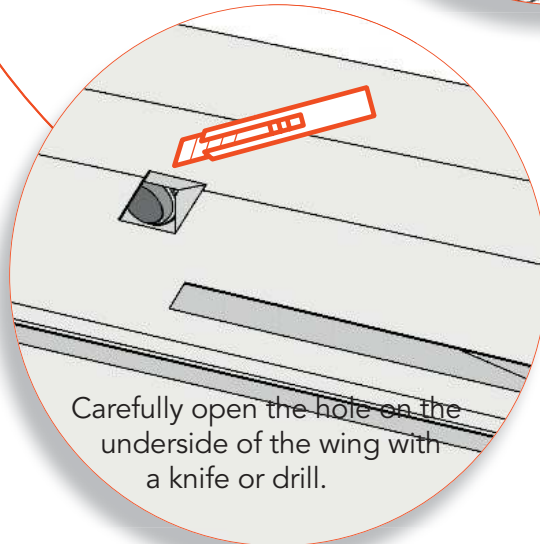**Be careful not to get any glue into the gap at the top of the wing!**
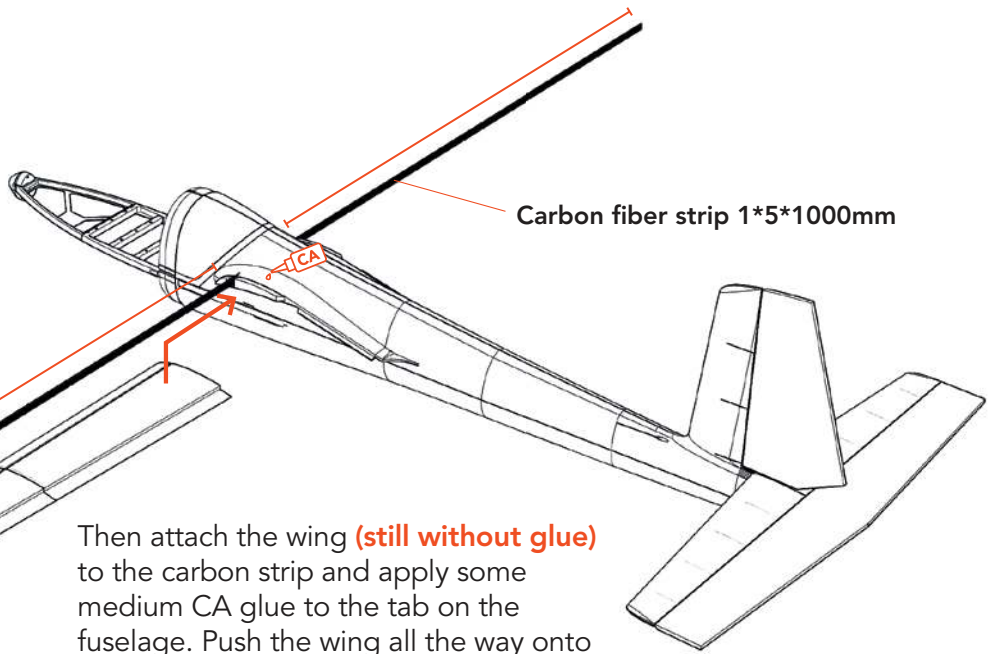
P2_Parts 1–S1.stl

CA

V_Wings 3–S1.stl

CA

CA
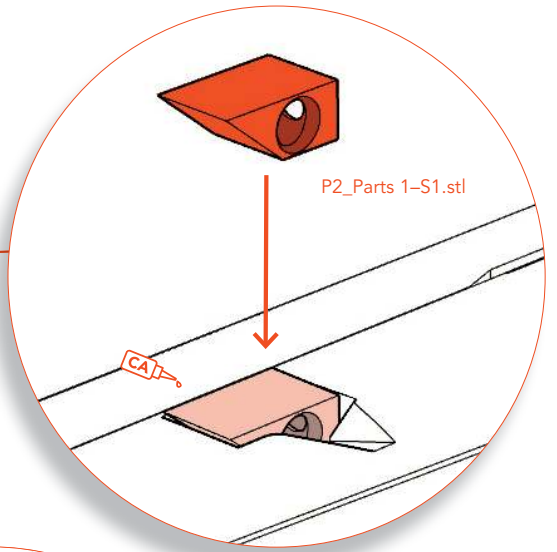
V_Wings 4–S1.stl

Carefully open the hole on the underside of the wing with a knife or drill.

Wing assembly

Insert the carbon fiber strip into the fuselage and align it exactly in the middle. Then let some thin CA glue run into the gap so that it is fixed to the fuselage.

**Carbon fiber strip 1*5*1000mm**

Then attach the wing **(still without glue)** to the carbon strip and apply some medium CA glue to the tab on the fuselage. Push the wing all the way onto the fuselage. Now let thin CA glue flow into the gap along the entire carbon strip.
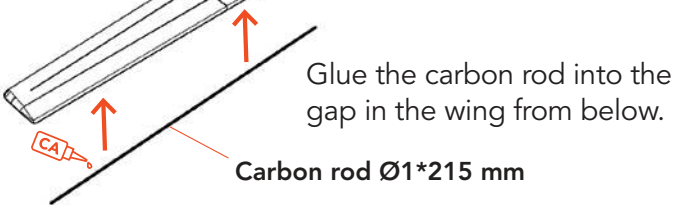
Glue the carbon rod into the gap in the wing from below.

Carbon rod Ø1*215 mm

Glue the wing foam parts to the wing and fuselage as shown in the picture. For Depron use UHU POR (again, coat both sides, allow to dry! and only then glue together).

Wing part
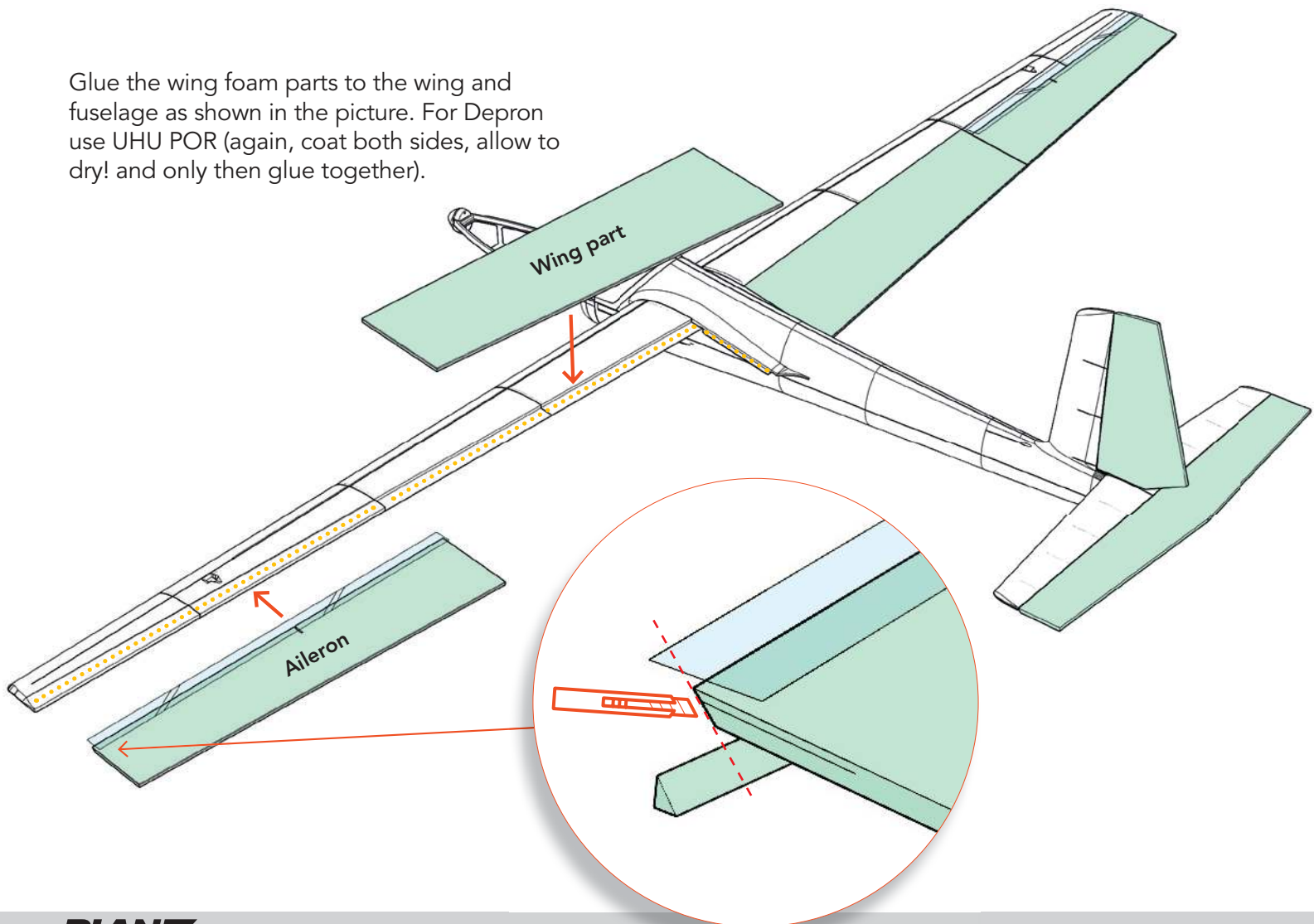
Aileron

Aileron Servo mount

Glue the control horns to the underside of the ailerons so that one half sticks out at the bottom and one at the top. For Depron, use UHU POR again as described above.

Now it gets a little tricky:

Cut a 1600 mm long piece of fishing line and tie one end to the lower horn of the Aileron. Then thread the other end into the hole so that it comes out around the bend below the wing.

Now thread the other end of the line into the wing in the opposite direction from below. This must protrude from the top and be tied to the upper horn.

P2_Parts 2–S1.stl
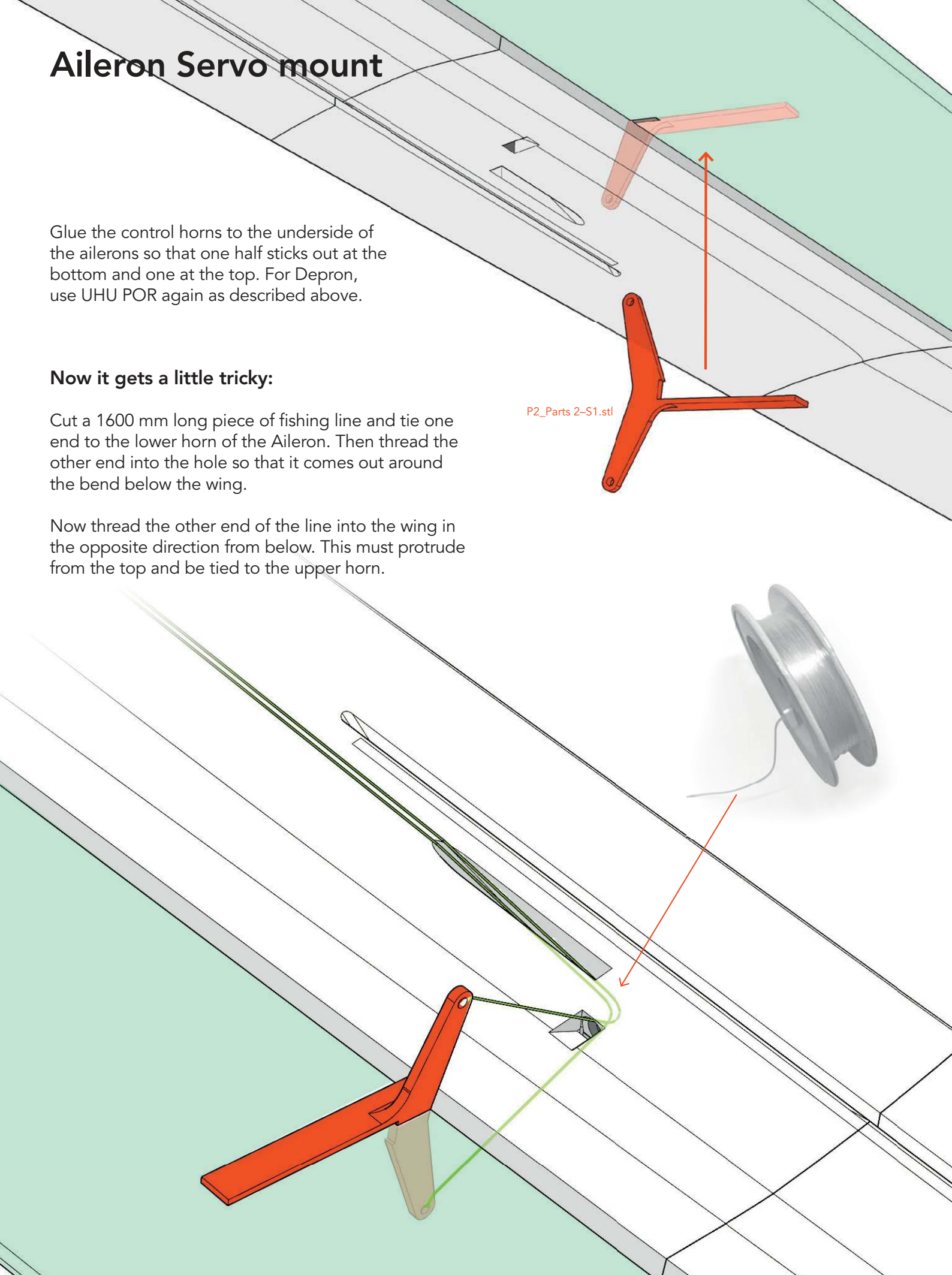
Aileron Servo mount

Set the aileron to neutral and gently tension the fishing lines. Now put a drop of UHU POR in the gap on the servo lever so that the fishing line runs in the glue and can also be pulled when the glue is hard (therefore UHU and not CA glue). This way you can adjust the tension later if necessary.

Then do this again in reverse with the other aileron.
When arranging the lines, make sure that the ailerons work in opposite directions!

This part NOT glue!

CA

CA

Thread the fishing line here

UHU

UHU
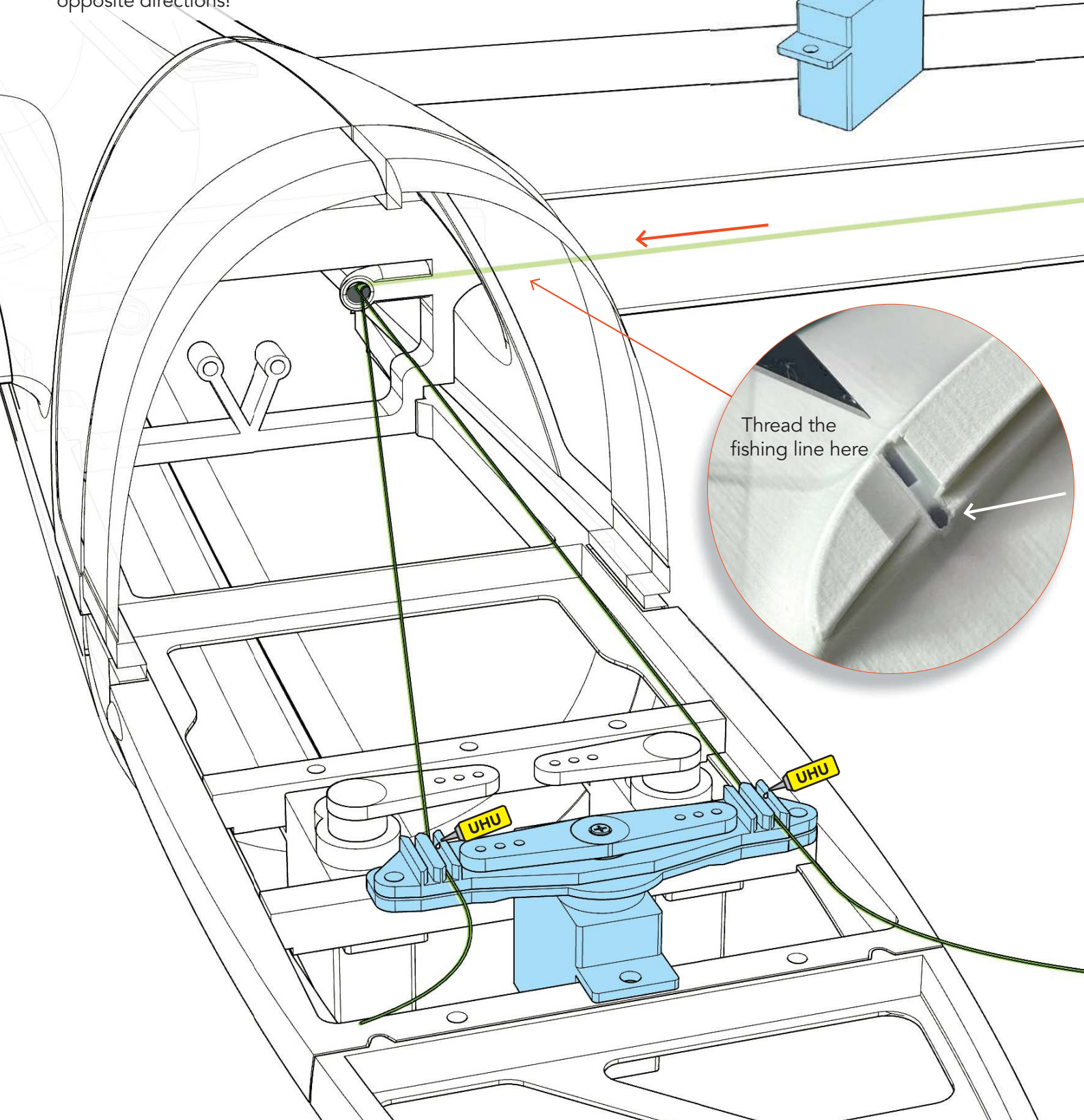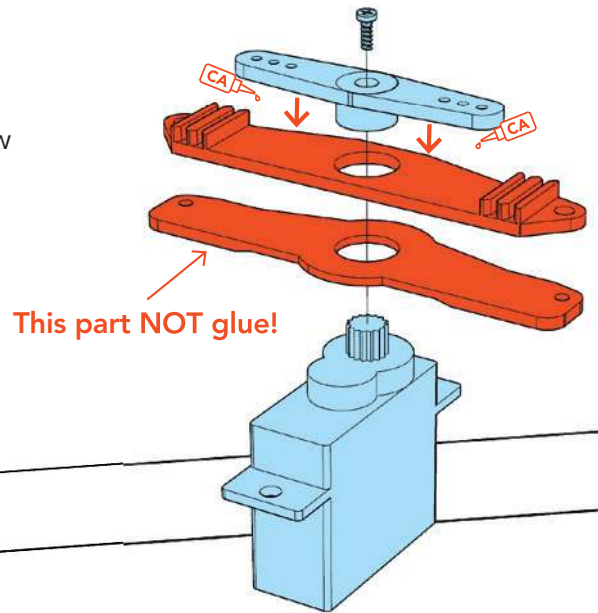
Aileron Servo mount

If the setting of the ailerons fits, bend the fishing lines downwards and clamp them between the plates. Then secure them with two short screws. You can then change the settings later.

V_Fuselage 1–S1.stl
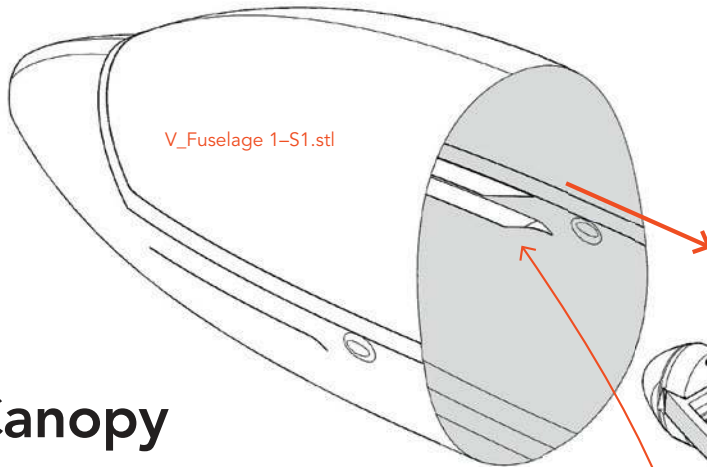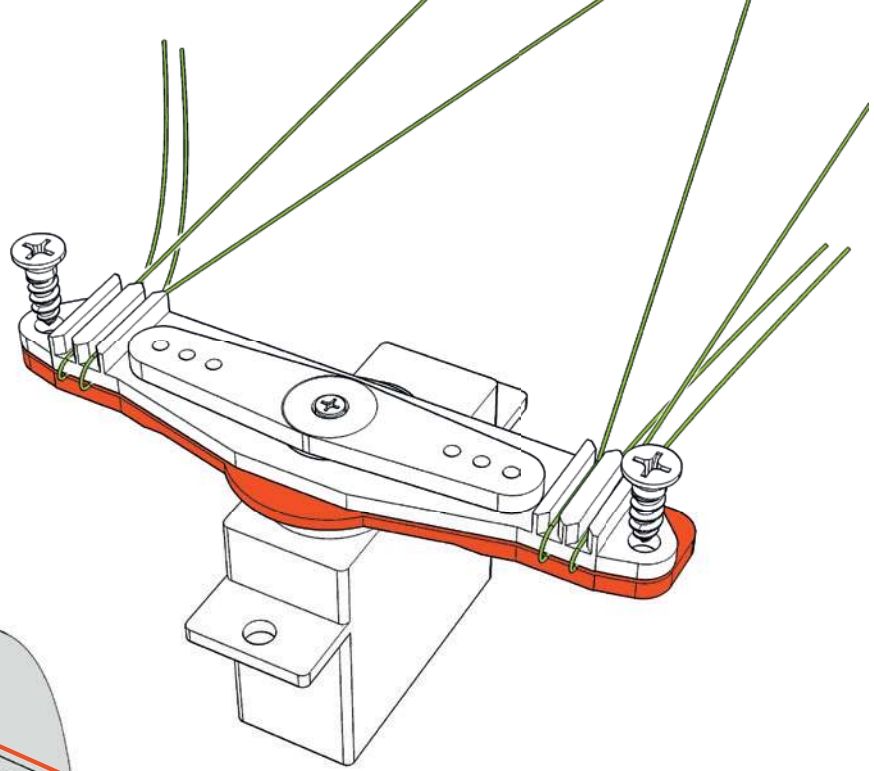
Canopy

Glue in a piece of carbon rod for stabilization as shown in the picture. **Make sure that the tip (tow coupling) is not pushed up or down, otherwise the canopy will no longer fit exactly!**

The canopy is simply pushed along the **guide tabs** on the fuselage. It does not need to be fixed in place.

Carbon rod Ø1*185 mm

CA

CA
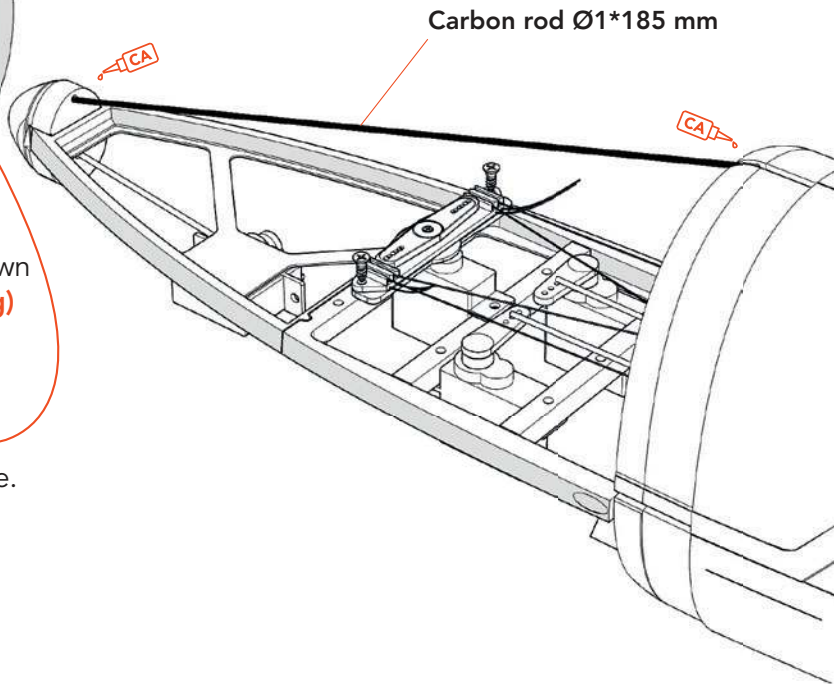
RC Components

Position the components so that the CG fits exactly. Secure them with self-adhesive Velcro tape.

Reiceiver

Battery
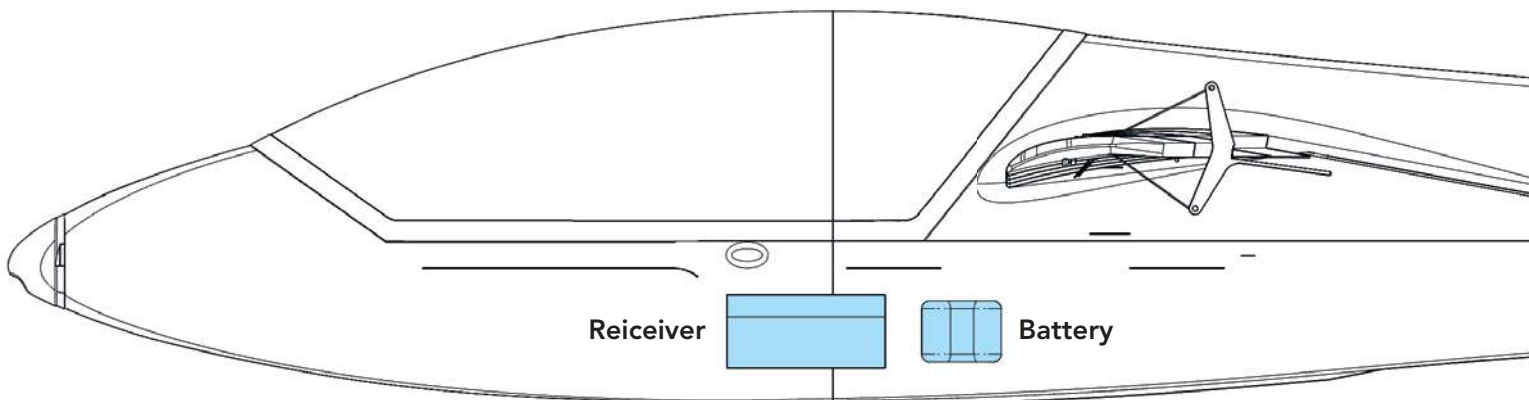
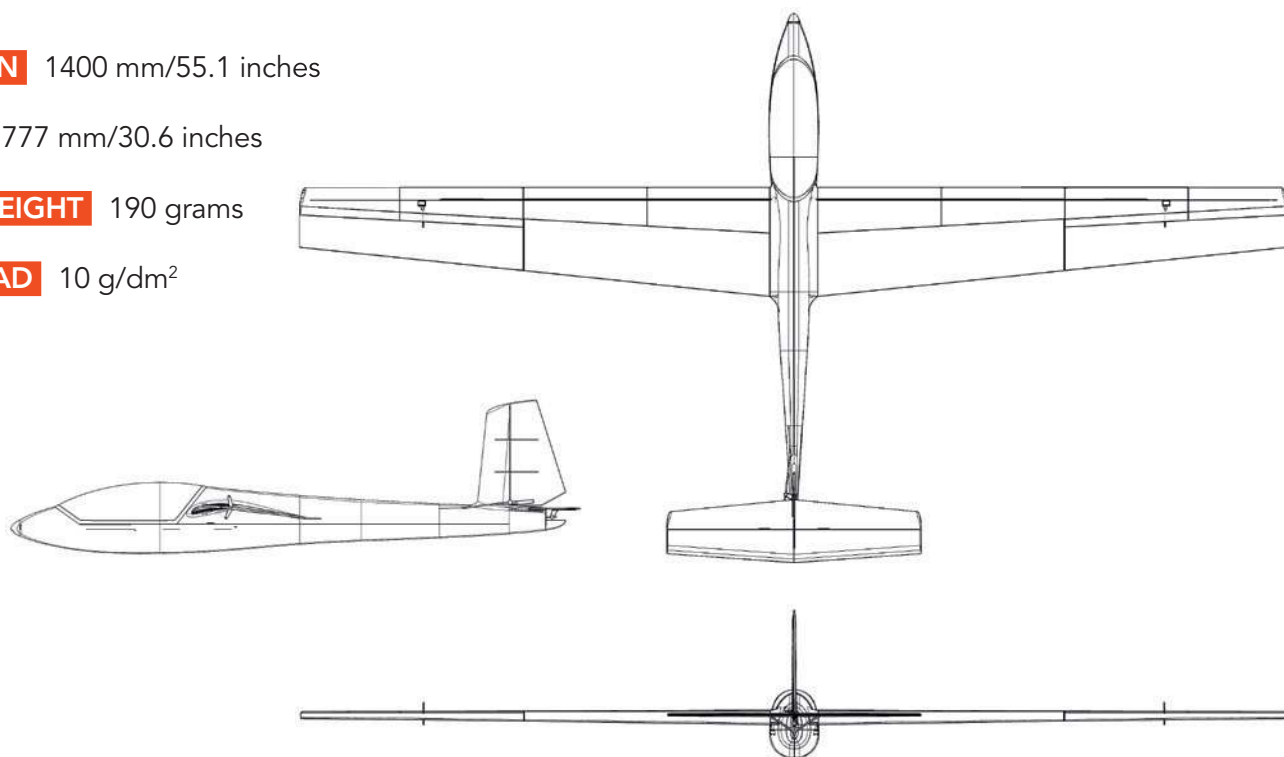# Technical specifications

WINGSPAN 1400 mm/55.1 inches

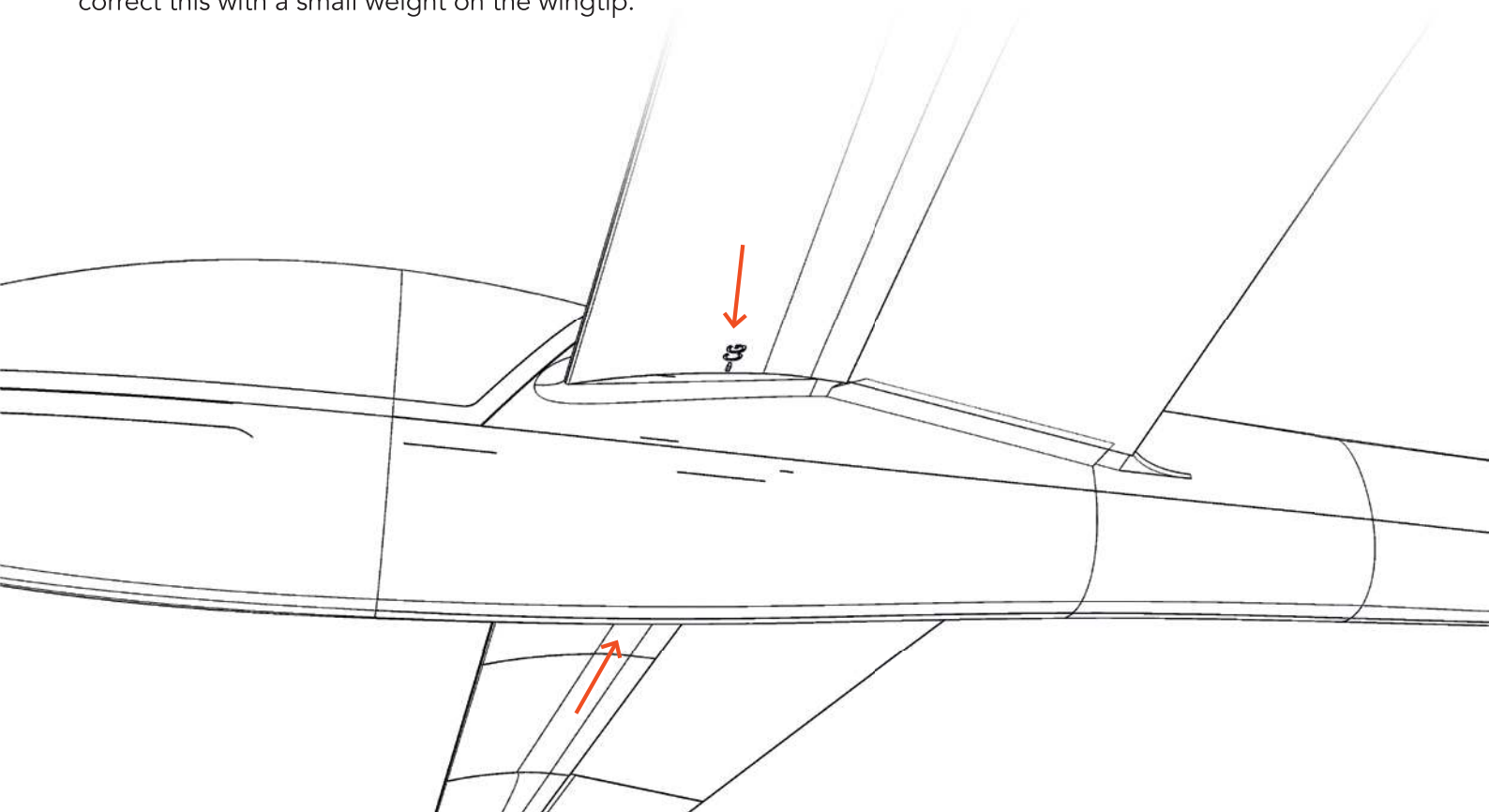**LENGTH** 777 mm/30.6 inches

FLIGHT WEIGHT 190 grams

WING LOAD 10 g/dm²

Center of Gravity (CG)

The aircraft must balance on these points – **see the markings on the wing**.
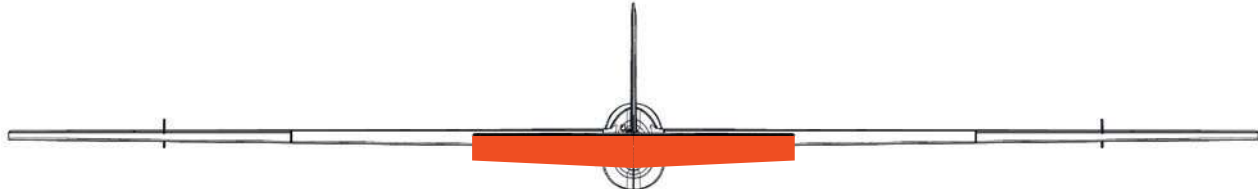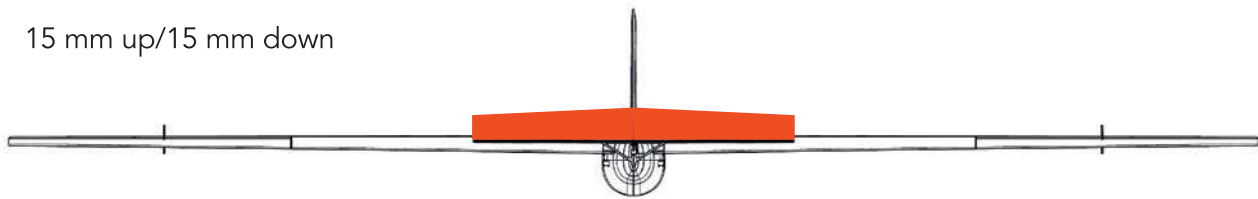(42 mm/1.6 inch behind the leading edge)

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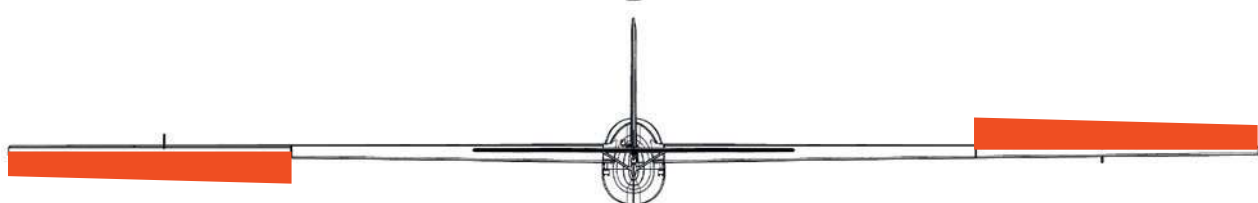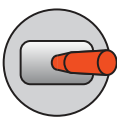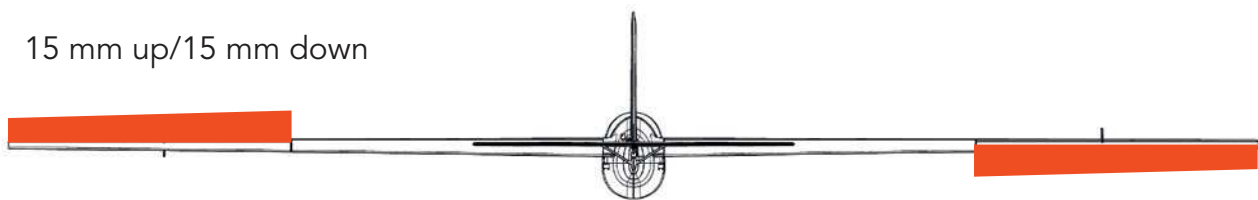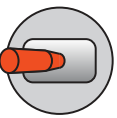
Control Direction Test

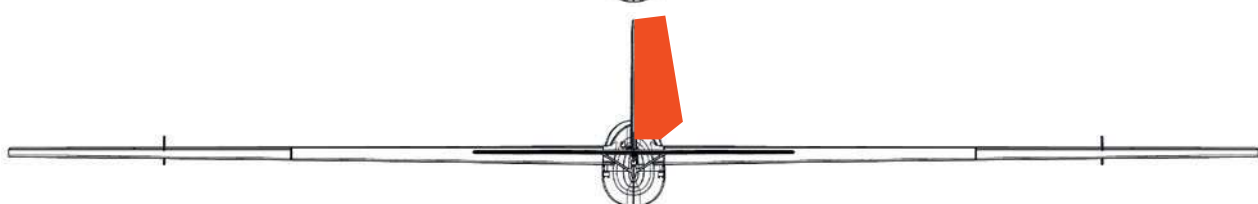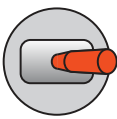When checking the control directions, **look at the aircraft from above** (rudder) **and behind.**
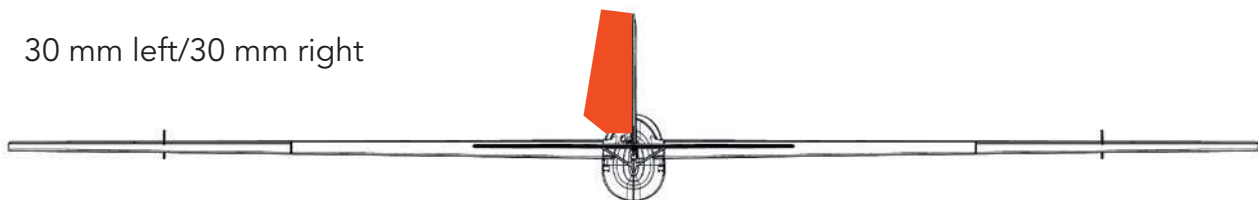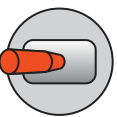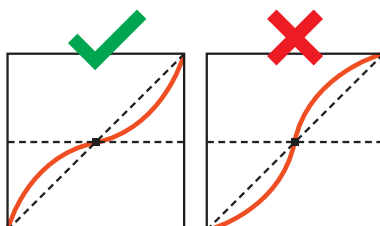
ELEVATOR   15 mm up/15 mm down

AILERON   15 mm up/15 mm down

RUDDER   30 mm left/30 mm right

Program the throttle lever or a switch for the **Tow function**.

EXPO   ELEVATOR 30 %

AILERON 30 %

RUDDER 30 %

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

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!

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