ASSEMBLING MANUAL \propto RINTING



NOTE: Slicing **only** works with CURA!

You can find the STL data

at www.planeprint.com

PRINTING THE PARTS – PRINTING PROFILES

You may wonder why this 3D model is suitable exclusively for CURA right?

The most important thing about small RC model airplanes is always the ratio of size to weight. The lighter a model is, the better its flight characteristics and also the flight time is significantly increased.

With our unique design process, we manage to make Weights relevant items in a **true 1-wall printing process** for the outer skin but also for the filling offer. So we save weight while maintaining the necessary stability.

Here we show you how to get started from a standard CURA profile Make settings. For this model we only need 4, easy to create profiles.

It is **absolutely necessary** to observe the information provided by **PLANEPRINT.com** in order: to slice the component correctly. However, it may make sense to perfect your 3D printing by additionally performing several hiring activities depending on your printer and the filament used.

STEP 1:

For slicing all Planeprint models, four profiles have to be created in Cura:

PROFILE P1_fullbody PROFILE P2_hollowbody PROFILE P3_surface PROFILE P4_flex

You can find the description at www.planeprint.com/print

IMPORTANT FOR THE 1-WALL-PRINT!

In order to print airfoils of the lowest possible weight with high stability, it is necessary to print with only one wall line (Nozzle 0.4 mm). Decisive here is the adhesion between the layers! To achieve this, you must print at a much higher temperature than normal. As a **guideline**, 230 ° C is a good starting point. The parts-cooling fan should be set to 0% or a maximum of 20%. Since not every printer works the same, it may be necessary to make small adjustments to these settings.



The development of a complex, airworthy RC flight model to express on any standard 3D printer is a very complex and extensive process. Therefore, we appeal to your fairness not to forward the STL data you have acquired to third parties. Our STL files are provided with indelible copyright watermarks that can be verified at any time.

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

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The following parts must be sliced with the PROFILE P1_FULLBODY. Please note the additional settings for the individual parts!



fm_battery holder_profile1.stl

MATERIAL PLA, Weight: ~ 6 g

ADDITIONAL SETTINGS

None required

fm_Gear Covers_profile1.stl

MATERIAL PLA, ~ 3 g

ADDITIONAL SETTINGS

None required





The following parts must be sliced with the PROFILE P1_FULLBODY. Please note the additional settings for the individual parts!

fm_Gear nose_profile1.stl

MATERIAL PLA, ~ 8 g

ADDITIONAL SETTINGS

• Wall Line Count 3

fm_Gear main_profile1.stl

MATERIAL PLA, ~ 16 g

ADDITIONAL SETTINGS

• Wall Line Count 3





The following parts must be sliced with the PROFILE P1_FULLBODY. Please note the additional settings for the individual parts!

fm_Interconnects_profile1.stl

MATERIAL PLA, ~ 3 g

ADDITIONAL SETTINGS

None required

fm_Lights_profile1.stl

MATERIAL transparent PLA, ~ 3 g

ADDITIONAL SETTINGS

• Wall Line Count 10





The following parts must be sliced with the PROFILE P1_FULLBODY. Please note the additional settings for the individual parts!

fm_Parts_profile1.stl

MATERIAL PLA, ~ 12 g

ADDITIONAL SETTINGS

None required

fm_Rims_profile1.stl

MATERIAL PLA, ~ 7 g

ADDITIONAL SETTINGS

None required



The following parts must be sliced with the PROFILE P1_FULLBODY. Please note the additional settings for the individual parts!

fm Servocovers Ailerons xxx _profile1.stl

MATERIAL PLA, ~ 6 g

ADDITIONAL SETTINGS

None required

INFO

There are different variants, look at the file name!

fm_Servocovers Flaps_xxx _profile1.stl

MATERIAL PLA, ~ 6 g

ADDITIONAL SETTINGS

None required

INFO

There are different variants, look at the file name!

The following parts must be sliced with the PROFILE P1_FULLBODY. **Please note the additional settings for the individual parts!**

fm_Nose detail_profile1.stl

MATERIAL PLA, ~ 2 g

ADDITIONAL SETTINGS

PROFILE P2_HOLLOWBODY

The following parts must be sliced with the PROFILE P2_HOLLOWBODY. **Please note the additional settings for the individual parts!**

fm_Gear Brackets_profile2.stl

MATERIAL PLA, ~ 5 g

ADDITIONAL SETTINGS

• Wall Line Count: 5

View of the infill:

fm_Canopy Latch_profile2.stl

MATERIAL PLA, ~ 3 g

ADDITIONAL SETTINGS

None required

The following parts must be sliced with the PROFILE P3_SURFACE (1-wall-print). Please note the additional settings for the individual parts!

PLEASE NOTE In profile P3_SURFACE, there should not be more than one STL on the buildplate at the same time, otherwise slicing errors can occur! Depending on your printer, a brim may not be required.

fm_Aileron-left_profile3.stl fm_Aileron-right_profile3.stl

MATERIAL PLA, ~ 15 g

ADDITIONAL SETTINGS

None required

fm_Canopy 1_profile3.stl

MATERIAL PLA, ~ 24 g

ADDITIONAL SETTINGS

• Fan 80 % (in the upper range there is a risk of overheating)

The following parts must be sliced with the PROFILE P3_SURFACE (1-wall-print). Please note the additional settings for the individual parts!

PLEASE NOTE In profile P3_SURFACE, there should not be more than one STL on the buildplate at the same time, otherwise slicing errors can occur! Depending on your printer, a brim may not be required.

fm_Canopy 2_profile3.stl

MATERIAL PLA, ~ 24 g

ADDITIONAL SETTINGS

None required

fm_Elevator 1_profile3.stl

MATERIAL PLA, ~ 17 g

ADDITIONAL SETTINGS

The following parts must be sliced with the PROFILE P3_SURFACE (1-wall-print). Please note the additional settings for the individual parts!

PLEASE NOTE In profile P3_SURFACE, there should not be more than one STL on the buildplate at the same time, otherwise slicing errors can occur! Depending on your printer, a brim may not be required.

fm_Elevator 2_profile3.stl

MATERIAL PLA, ~ 11 g

ADDITIONAL SETTINGS

None required

fm_Flap-left_profile3.stl fm_Flap-right_profile3.stl

MATERIAL PLA, ~ 22 g

ADDITIONAL SETTINGS

The following parts must be sliced with the PROFILE P3_SURFACE (1-wall-print). Please note the additional settings for the individual parts!

PLEASE NOTE In profile P3_SURFACE, there should not be more than one STL on the buildplate at the same time, otherwise slicing errors can occur! Depending on your printer, a brim may not be required.

fm_Fuselage 1_profile3.stl

MATERIAL PLA, ~ 65 g

ADDITIONAL SETTINGS

None required

fm_Fuselage 2_profile3.stl

MATERIAL PLA, ~ 84 g

ADDITIONAL SETTINGS

The following parts must be sliced with the PROFILE P3_SURFACE (1-wall-print). Please note the additional settings for the individual parts!

PLEASE NOTE In profile P3_SURFACE, there should not be more than one STL on the buildplate at the same time, otherwise slicing errors can occur! Depending on your printer, a brim may not be required.

fm_Fuselage 3_profile3.stl

MATERIAL PLA, ~ 95 g

ADDITIONAL SETTINGS

None required

fm_Fuselage 4_profile3.stl

MATERIAL PLA, ~ 82 g

ADDITIONAL SETTINGS

The following parts must be sliced with the PROFILE P3_SURFACE (1-wall-print). Please note the additional settings for the individual parts!

PLEASE NOTE In profile P3_SURFACE, there should not be more than one STL on the buildplate at the same time, otherwise slicing errors can occur! Depending on your printer, a brim may not be required.

fm_Fuselage 5_profile3.stl

MATERIAL PLA, ~ 34 g

ADDITIONAL SETTINGS

None required

fm_Fuselage 6_profile3.stl

MATERIAL PLA, ~ 7 g

ADDITIONAL SETTINGS

The following parts must be sliced with the PROFILE P3_SURFACE (1-wall-print). Please note the additional settings for the individual parts!

PLEASE NOTE In profile P3_SURFACE, there should not be more than one STL on the buildplate at the same time, otherwise slicing errors can occur! Depending on your printer, a brim may not be required.

fm_Nose_profile3.stl

MATERIAL PLA, ~ 14 g

ADDITIONAL SETTINGS

None required

fm_Stabilizer 1-left_profile3.stl fm_Stabilizer 1-right_profile3.stl

MATERIAL PLA, ~ 21 g

ADDITIONAL SETTINGS

The following parts must be sliced with the PROFILE P3_SURFACE (1-wall-print). Please note the additional settings for the individual parts!

PLEASE NOTE In profile P3_SURFACE, there should not be more than one STL on the buildplate at the same time, otherwise slicing errors can occur! Depending on your printer, a brim may not be required.

fm_Stabilizer 2-left_profile3.stl fm_Stabilizer 2-right_profile3.stl

MATERIAL PLA, ~ 12 g

ADDITIONAL SETTINGS

None required

fm_Wing 1-left_profile3.stl fm_Wing 1-right_profile3.stl

MATERIAL PLA, ~ 54 g

ADDITIONAL SETTINGS

The following parts must be sliced with the PROFILE P3_SURFACE (1-wall-print). **Please note the additional settings for the individual parts!**

PLEASE NOTE In profile P3_SURFACE, there should not be more than one STL on the buildplate at the same time, otherwise slicing errors can occur! Depending on your printer, a brim may not be required.

fm_Wing 2-left_profile3.stl fm_Wing 2-right_profile3.stl

MATERIAL PLA, ~ 43 g

ADDITIONAL SETTINGS

None required

fm_Wing 3-left_profile3.stl fm_Wing 3-right_profile3.stl

MATERIAL PLA, ~ 34 g

ADDITIONAL SETTINGS

None required

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The following parts must be sliced with the PROFILE P3_SURFACE (1-wall-print). Please note the additional settings for the individual parts!

PLEASE NOTE In profile P3_SURFACE, there should not be more than one STL on the buildplate at the same time, otherwise slicing errors can occur! Depending on your printer, a brim may not be required.

fm_Wing 4-left_profile3.stl fm_Wing 4-right_profile3.stl

MATERIAL PLA, ~ 10 g

ADDITIONAL SETTINGS

None required

fm_Wingtip-left_profile3.stl fm_Wingtip-right_profile3.stl

MATERIAL PLA, ~ 16 g

ADDITIONAL SETTINGS

The following parts must be sliced with the PROFILE P3_SURFACE (1-wall-print). **Please note the additional settings for the individual parts!**

PLEASE NOTE In profile P3_SURFACE, there should not be more than one STL on the buildplate at the same time, otherwise slicing errors can occur! Depending on your printer, a brim may not be required.

fm_EDF-Cover_profile3.stl

MATERIAL PLA, ~ 10 g

ADDITIONAL SETTINGS

• 30 % Fan

PROFILE P4_FLEX

The following parts must be sliced with the PROFILE P4_FLEX. Please note the additional settings for the individual parts!

MATERIAL We recommend varioShore TPU from Colorfabb!

$fm_Gear\text{-}flex_profile4.stl$

MATERIAL LW-TPU varioShore Flow 70 % Weight: ~ 3 g

The suspension works best with Colorfabb's soft varioShore. Alternatively, it can also be printed with TPU A95.

ADDITIONAL SETTINGS

• Wall Line Count: 5

fm_Hinges_profile4.stl

MATERIAL LW-TPU varioShore Flow 100 % Weight: ~ 3 g

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Or normal TPU A95.

ADDITIONAL SETTINGS

None required

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PROFILE P4_FLEX

The following parts must be sliced with the PROFILE P4_FLEX. Please note the additional settings for the individual parts!

MATERIAL We recommend varioShore TPU from Colorfabb!

fm_Tire front_profile4.stl

MATERIAL LW-TPU varioShore Flow 70 % Weight: ~ 8 g

The suspension works best with Colorfabb's soft varioShore. Alternatively, it can also be printed with TPU A95.

ADDITIONAL SETTINGS

varioShore with Flow 70 %:

- Wall Line Count: 5
- Top Layers: 5
- Bottom Layers: 5
- Infill Density: 15 %
- Infill Pattern: Gyroid

TPU A95:

- Wall Line Count: 2
- Top Layers: 3
- Infill Pattern: Gyroid

fm_Tire_profile4.stl

MATERIAL LW-TPU varioShore Flow 70 % Weight: ~ 17 g

The suspension works best with Colorfabb's soft varioShore. Alternatively, it can also be printed with TPU A95.

ADDITIONAL SETTINGS

varioShore with Flow 70 %:

- Wall Line Count: 6
- Top Layers: 6
- Bottom Layers: 6
- Infill Density: 15 %
- Infill Pattern: Gyroid
- print twice

TPU A95:

- Wall Line Count: 3
- Top Layers: 3
- Infill Pattern: Gyroid

PROFILE P4_FLEX

The following parts must be sliced with the PROFILE P4_FLEX. Please note the additional settings for the individual parts!

MATERIAL We recommend varioShore TPU from Colorfabb!

fm_Tire back_profile4.stl

MATERIAL LW-TPU varioShore Flow 70 % Weight: ~ 8 g

The suspension works best with Colorfabb's soft varioShore. Alternatively, it can also be printed with TPU A95.

ADDITIONAL SETTINGS

varioShore with Flow 70 %:

- Wall Line Count: 4
- Top Layers: 4
- Bottom Layers: 4
- Infill Density: 15 %
- Infill Pattern: Gyroid

TPU A95:

- Wall Line Count: 2
- Top Layers: 3
- Infill Pattern: Gyroid

REQUIRED ACCESSOIRES

Filament

- normal PLA about 1500 grams
- LW-TPU varioShore (or TPU A95) about 50 grams

Materials

- some tapping screws Ø2*8 mm
- 3 Screws Ø3*22 mm self-locking screw nuts for the wheels (simply search for: M2 flat head tapping screw assortment)
- CA super glue (liquid and liquid medium)
- CA activator
- Servo extension cables or cable for soldering
- Carbon tube Ø8*910mm (inside 6mm)
- Carbon tube Ø8*538mm (inside 6mm)
- Carbon rod Ø4mm about 400mm
- Carbon rod Ø1.5mm a small piece or something similar
- Steel wire Ø3mm about 150mm
- Steel wire Ø1mm, 2 pieces 700mm, 1 piece 400mm
- Rod connection, 9 pieces
- Self adhesive velcro tape
- 1 spring of a ballpoint pen

Rod connection

Tapping screws

Tools

- Cutter knife
- small Philips screwdriver
- Drill Ø4mm, Ø3mm, Ø2,5mm, Ø1,5mm
- Metal saw and metal file (or better a Dremel)

RC Components

ENGINE EDF 70 mm, 4S or 6S We use the FMS 70

BEC-CONTROLLER suitable for your EDF

RECEIVER 9 Channel (recommended) or 8 Channel if the flaps are controlled with a Y-cable

BATTERY 4S or 6S LiPo-Akku

SERVOS Hitec HS-5055MG or (or similar in the same size), 7 pieces

RETRACTION GEAR 2x Servoless Retraction Gear small (32mm x 25mm) 1x Servoless Retraction Nose-Gear small

BASIC INFORMATION

Gluing the parts

To glue the fuselage and wing parts well, **use medium-liquid CA** adhesive.

First check whether the parts go well together. Then apply a lot of CA glue to the part with the connections and all surfaces that will touch later (except the bowden tubes). Put the parts together and align the parts perfectly. If glue comes out, wipe with a cloth. Then spray activator spray on the glue points.

IMPORTANT For a strong connection, the adhesive surfaces should be sanded. Please only use fresh CA glue and activator spray for curing! The adhesive connections must hold perfectly!

Installation of the TPU hinges

First insert the hinge into the movable flap and add a drop of liquid CA adhesive into the gap. Wait for the glue to drain completely, then spray the activator on it.

Then put the flap in the wing until the flap touches the spacers and put a drop of CA glue on the hinge. Wait again for the glue to run in, and then spray the activator on it. **Do not use too much glue, the flap must move easily!**

ASSEMBLY INSTRUCTIONS

First remove the support with the cutter knife. You can also break out some support parts by hand.

NOTE Please be careful with the knife!

fm_Fuselage 6_profile3.st m_Fuselage 5_profile3.stl

Start with STEP 1: Glue the interconnects in fuselage 3. Then put enough glue on Fuselage 2 (not on the interconnects) and put the parts together.

IMPORTANT First put all interconnects only a little bit into all slots and then join the parts with a quick movement, so that the glue does not set already during the pushing together.

Canopy clear view version

If you want to build the canopy as a **clear version**, you have to remove these fields carefully with the knife. It works best if you cut along the edges several times with little pressure and then carefully break out the window parts. ion × ×

With the STL data you will find the PDF file **fm_Canopypath.pdf** as a cutting template for the glass panes.

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

Suitable foils are overhead foils or binding covers of scripts (~0,2mm, office trade) in DIN A4 format.

Attach the template with tape behind the foil. Then stick narrow strips of double-sided tape on the white edges around the panes (keep some distance to the blue areas).

Then cut out the individual glass surfaces exactly along the black lines.

Then glue the foil parts from the inside into the canopy frame.

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Wings and Ailerons assembly

Wing fastening

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Insert the tube clamps without glue from below into the wing. Use an 8mm long self-tapping screw to prevent the wings from slipping off without damaging the carbon tube.

Nose detail

Carbon tube

Ø8*538mm

Some fougas are equipped with brackets on the nose, if desired you can glue them to the marked areas.

Carbon tube

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Ø8*910mm

-

6 0,

3

tube clamp fm_Parts_profile1.stl

Nose gear

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EDF mounting

Fuselage servo mounting

Screw the **servo brackets from fm_Parts_profile1.stl** to the servos and glue them in the fuselage as shown. Grind the glue joints before to achieve a perfect connection!

In the **Additional parts** folder you will find an **undrilled version**.

Glue the battery holder well to the fuselage.

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Control Direction Test

Turn on the transmitter and connect the battery. When checking the control directions, look at the aircraft from behind.

- 1. Move the aileron lever to the left. The right aileron should move down and the left aileron should move up so that the aircraft tilts to the left.
- 2. Move the aileron lever to the right. The right aileron should move up and the left aileron down so that the aircraft is tilting to the right.
- 3. Pull back the elevator lever. The elevators should move up, causing the aircraft to rise.
- 4. Push the elevator lever forward. The elevator should move down so that the aircraft sinks.
- 5. Move the rudder lever to the left. The rudder should move to the left.
- 6. Move the rudder lever to the right. The rudder should move to the right
- Move the flap switch to position 2. The flaps should move down by the set value "half".
- Move the flap control switch to position
 The flaps should move down by the set value "full".

IMPORTANT The flaps must be aligned exactly the same in every position, otherwise the aircraft will not fly straight!

SETTINGS FOR FLYING

After installing the electronics and setting up the transmitter, check that the control surfaces are aligned correctly. Set the transmitter trim to zero. Align all rudders to zero position. Change the position of the moving parts by changing the length of the linkage from the servo arm to the control horn. In-flight adjustments can be made later with the trim.

Center of Gravity (CG)

The aircraft must balance 86 mm/3.38 inches behind the leading edge (see markings on the fuselage). For the first flight we recommend to move the center of gravity about 5 mm/0.2 inches further forward.

Flight timer

Flight time will vary depending on the battery size. Expect 3 minutes under normal circumstances; however, it may be possible to fly for much longer. It is a good idea to be conservative with the flight timer until you gain experience with your airplane.

TECHNICAL SPECIFICATIONS

WINGSPAN 1370 mm/53.9 inches

LENGHT 1134 mm/44.6 inches

FLIGHT WEIGHT 2030 grams (with 4S/4200 MaH-Battery)

AGE RECOMMENDATION 14+

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

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. **Please be careful when handling motors, batteries and propellers** and only move your model with insurance and in approved places!

