

## Maxa wing assembly

Maxa wings assembly required:

- typical set of tools,
- adhesives and H/W,
- including sandpaper (#100),
- epoxy,
- micro balloons,
- CA,
- knife,
- scale,
- scotch,
- servo frames (<http://servorahmen.de>)

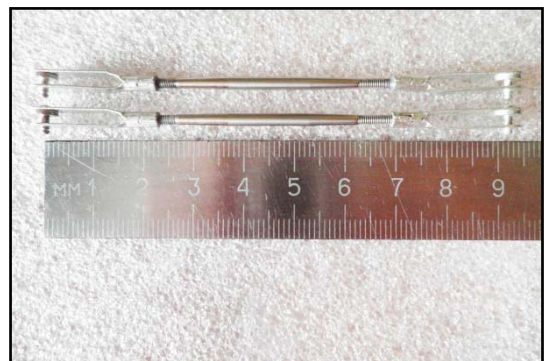
1) Assemble push rods as it is shown on picture 1.



Pic.1 - Aileron plugs, traction and pushers

2) Adjust push rods length as it is shown on picture 2 and picture 3:

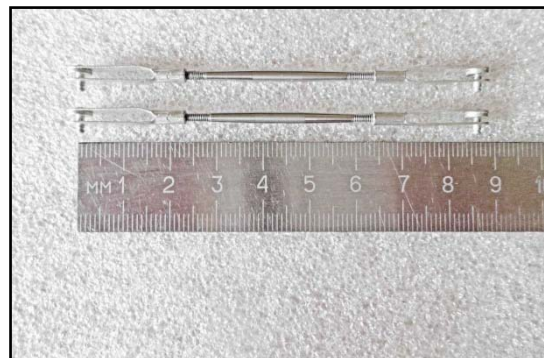
- Flap's push rods to ~93 mm
- Aileron's push rod to ~85 mm



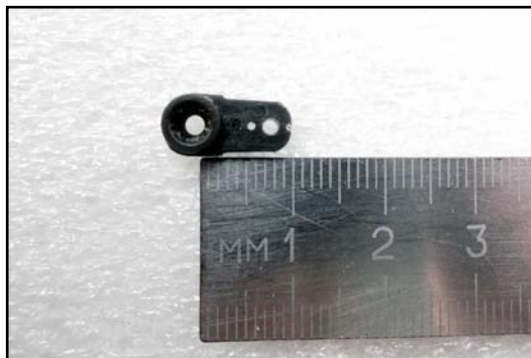
Pic.2 –Flaps push rods

3) Cut servo's control horns as it is shown on picture 4 and picture 5:

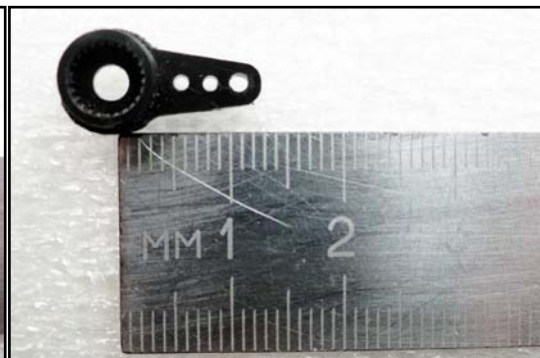
- Aileron's control horns to ~8-9 mm moment arm
- Flap's control horns to ~10-12 mm moment arm.



Pic.3 – Aileron push rods



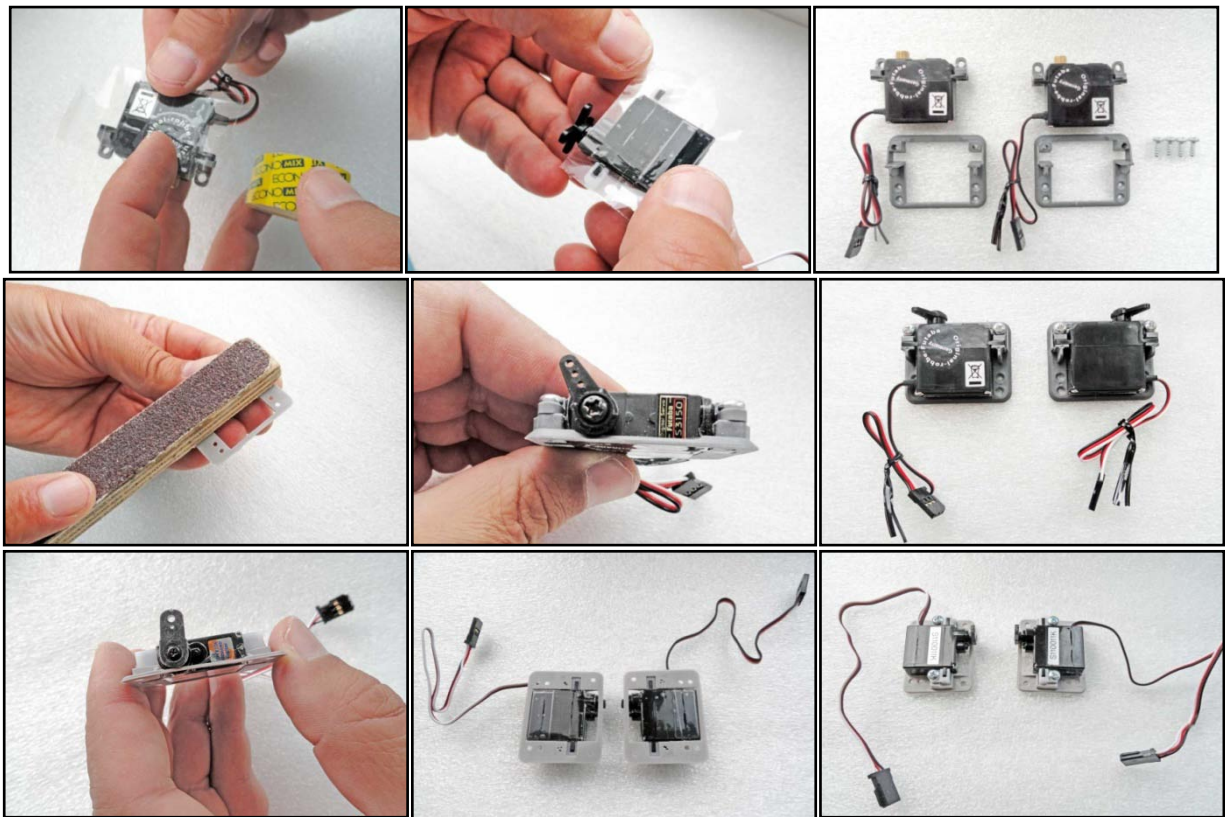
Pic.4 – Ailerons horns



Pic.5 – Flap's horns

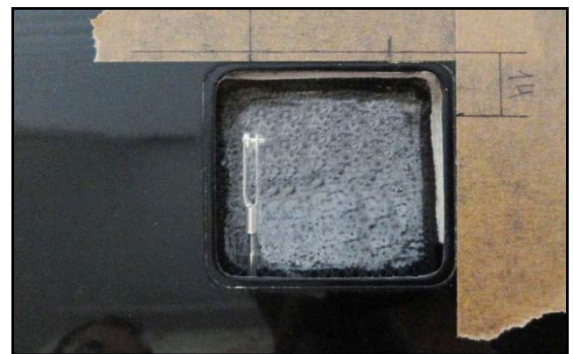
4) Prepare servos for installation as it is shown on picture 6.

**Note:** It is highly recommended to isolate servos from bonding material by film material (such as scotch) for easy removal, exchange and service.



Pic.6 – Preparing servos for wing

5) Apply masking tape with positions marks for servo arms/axis locations as it is shown on picture 7. That will align servo arms with servo covers. Send internal wing surface and servo frames contact surfaces for servo installation/bonding.



Pic.7 – Markings near hatch

6) Screw in brass servo horns into the wing (picture 8)



Pic.8 – Pushrods flaps and ailerons

### 7) Adjust servo's control horns neutral position.

Adjust servo's control horns neutral position. The goal is to achieve maximum flaps deployment up to 85 deg. down (for maximum braking) and 6 deg. up (for speed mode), with maximum servo travel range. Servo control horn with smaller moment arm would make possible flat servo cover installation and minimize servo loading:

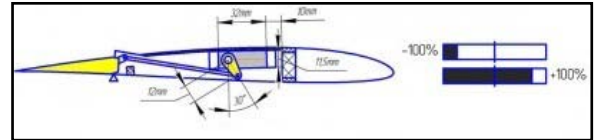
a. Adjust servo's control horns neutral position utilizing servo tester, or any unused radio channel with zero subtrim/trim. Control horn should be normal to servo installation surface.

b. Lock control horns to servos shafts.

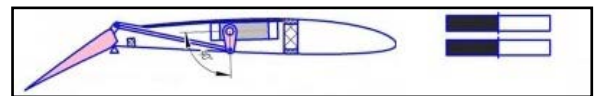
c. Connect flap's servos to allocated radio channels. Adjust control horns to ~30 deg. angles utilizing subtrim/offset or similar your radio specific function ( in Futaba you can do it in the menu «flap settings» establish there required value «offset» (nearly 65-75), in Graupner – menu «Model type» - «Brake Offset»+95%)

d. Extend servo's range of motion/travel to maximum. You may check and adjust range of motion/travel and servos functionality by temporary installing servos into the wing utilizing double sided scotch

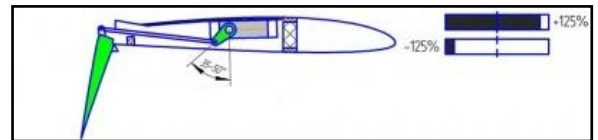
tape (examples are shown on the pictures 9-11).



Pic.9 – Neutral position of the flaps



Pic.10 – Intermediate of the flaps



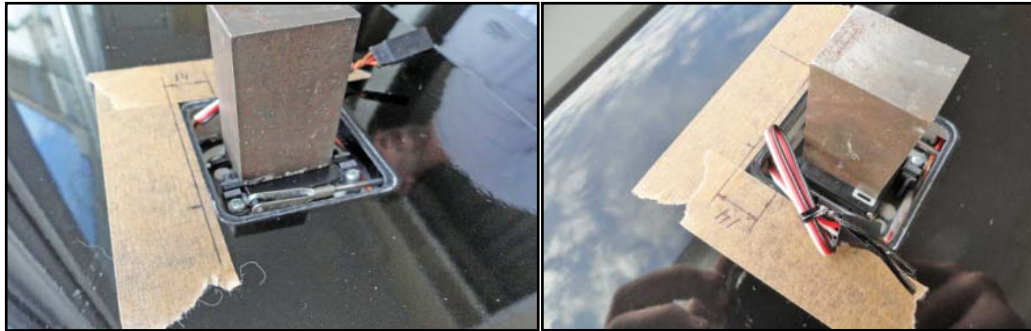
Pic.11 – Maximum of the flap (position "brake")

8) After adjustments remove servos from the wing and cleanup/prepare all surfaces for bonding. Mix epoxy with micro balloons and apply it to servo frames (as it is shown on picture 12).



Pic.12 – Resin on frame servo

9) Fix flaps in neutral position. Placed servos with applied epoxy and push rods connected to both flaps and servos, into the wing pockets. Make sure that servos are at the marked position, and everything is aligning properly. Apply weights to secure servos positions and archive minimum bond line thickness (as it is shown on picture 13).



Pic.13 – Bonding of servo

10) If you would like to reduce chance of flutter, you may implement technic what Joe Wurtz uses to connect servos to wing's bottom skin. The details are shown on picture 14, and may be found at the following link:

[http://f3j.in.ua/media/supra-instructions/Joe Wurtz about wing servo instalation.pdf](http://f3j.in.ua/media/supra-instructions/Joe%20Wurtz%20about%20wing%20servo%20instalation.pdf)



Pic.14 – Servos connected to the upper wing skin

11) To archive symmetrical flap's deflection, both push rods length must be equal up to half rotation turn. Final flaps position could be adjusted by radio's subtrim function.

12) If flaps work perfectly, apply CA to push rods at the clevis-rod junctions.

13) Install servo covers utilizing provided rectangular clear tapes (picture 15). You may enjoy that as well!



Pic.15 – Gluing flat servohatch Fix

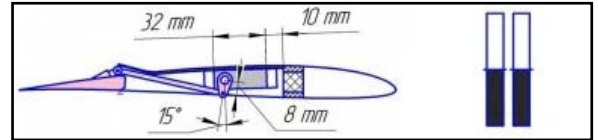
14) Aileron's servos installation and adjustments is a bit less complicated:

For ailerons neutral position control horn should be at the 15 deg., with 8 mm moment arm.

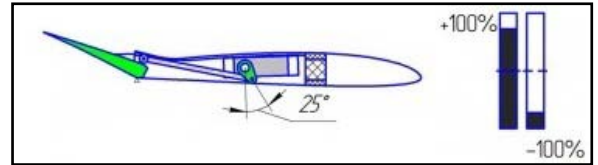
Approximate servo's control horn motion angle for ailerons up deflection is 25 deg.

Approximate servo's control horn motion angle for ailerons down deflection is 35 deg.

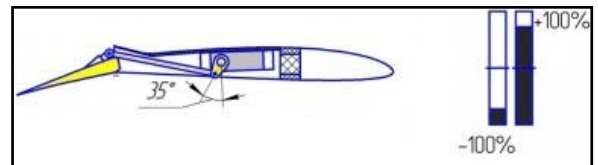
If you achieved required ailerons controls, install ailerons servos and servo covers with the same procedure as for flap's servos and covers installation.



Pic.16 – Neutral position of the ailerons



Pic.17 – Aileron up



Pic.18 – Aileron down

**Note:** Please pay attention to adjust ailerons push rods to the same length. Try to utilize the servo cover with smallest bulge

15) In some cases the push rod clevises may interfere with servo control horn or servo shaft. In that case make a round cutoff in clevis as it is shown on picture 19.

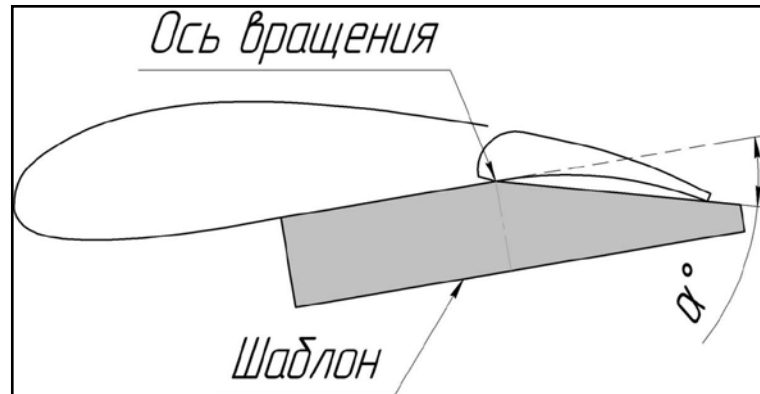


Pic.19 – Round cut in your plug

16) Adjust proper flaps and aileron deflection angles utilizing Maxa specific templates.

**Templates for MAXA wing setup** (1:1 scale)

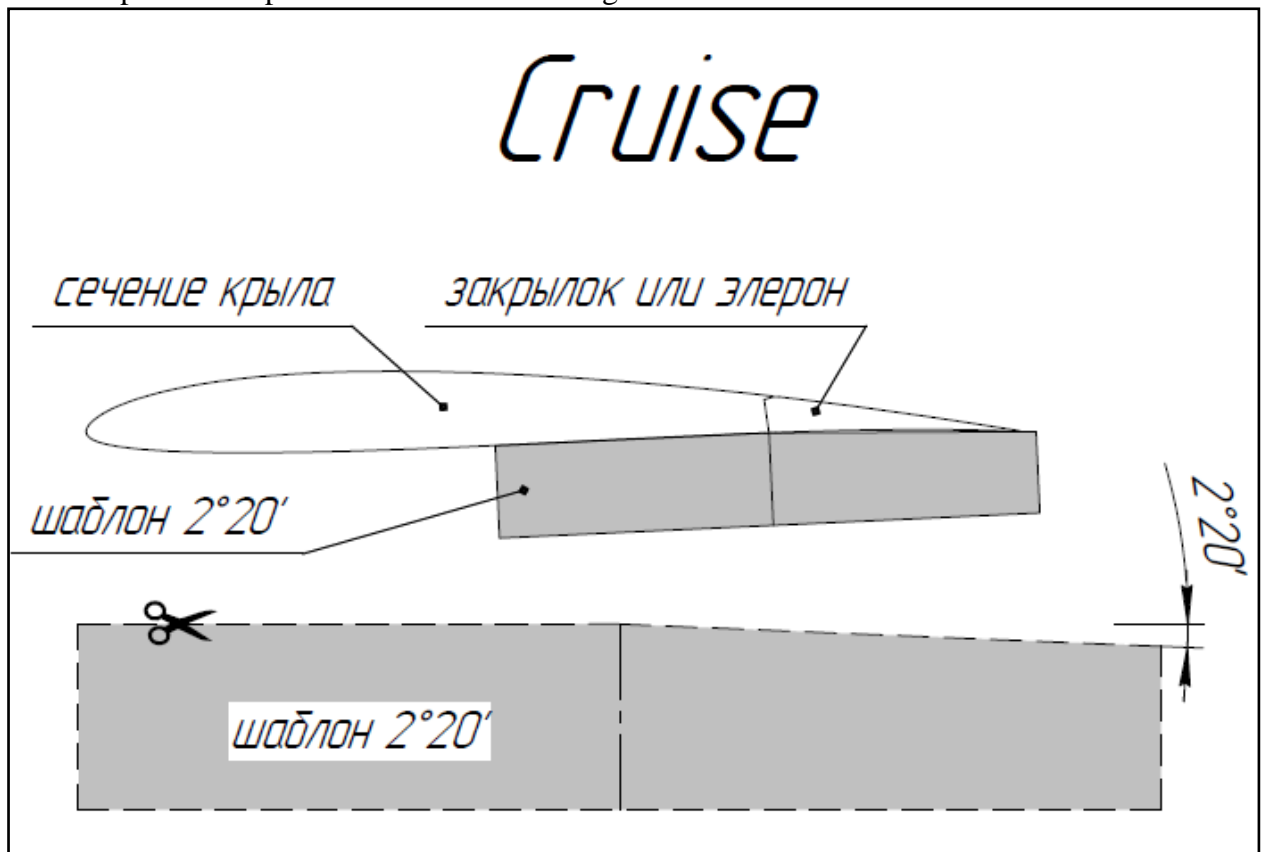
We are recommending the following Maxa wing trilling edge setups, and providing corresponding templates. Templates should be applied as shown on the following picture. Front template section should be aligned with fix part of the wing. Aft template section should be aligned to the aileron/flap by two points at the axis of rotation and trilling edge of the aileron/flap.



Maxa's trilling edge control is essential to achieve high performance flying in different flying modes and flying conditions/environments. We recommend to control wing trilling edge by flight modes/switches, or/and by dedicated slider. Pilot should choose how to control trilling edge based on his personal preferences and transmitter capability. Provided templates are examples for initial Maxa setup. Templates should be applied at the center panel – wing tips junction. Templates names are provided for reference only, and could be different from flight modes.

CRUISE template

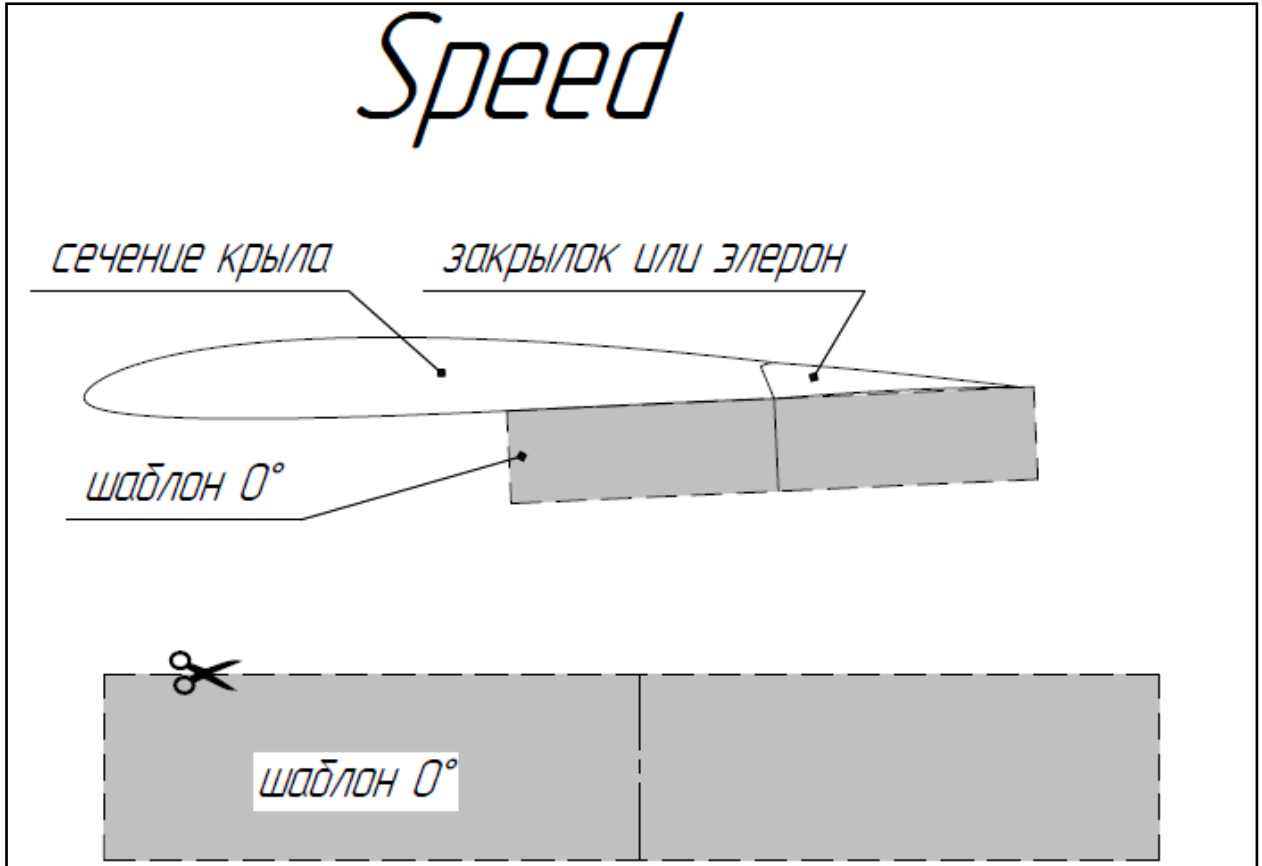
That template is for pure theoretical Maxa wing airfoil.



### SPEED template

That template is for transition flying from one lift to another, for returning from distant lift back, or for flying in high wind conditions/environments. Speed setup could be applied by slider first extreme position, or/and by assigned switch. It may also be used as a start mode for Maxa El.

For best zoom performance we recommend to add 1mm more up setting.



### THERMAL template

That template is for maximum wing airfoil cumber. Thermal setup could be applied by slider second extreme position, or/and by assigned switch.

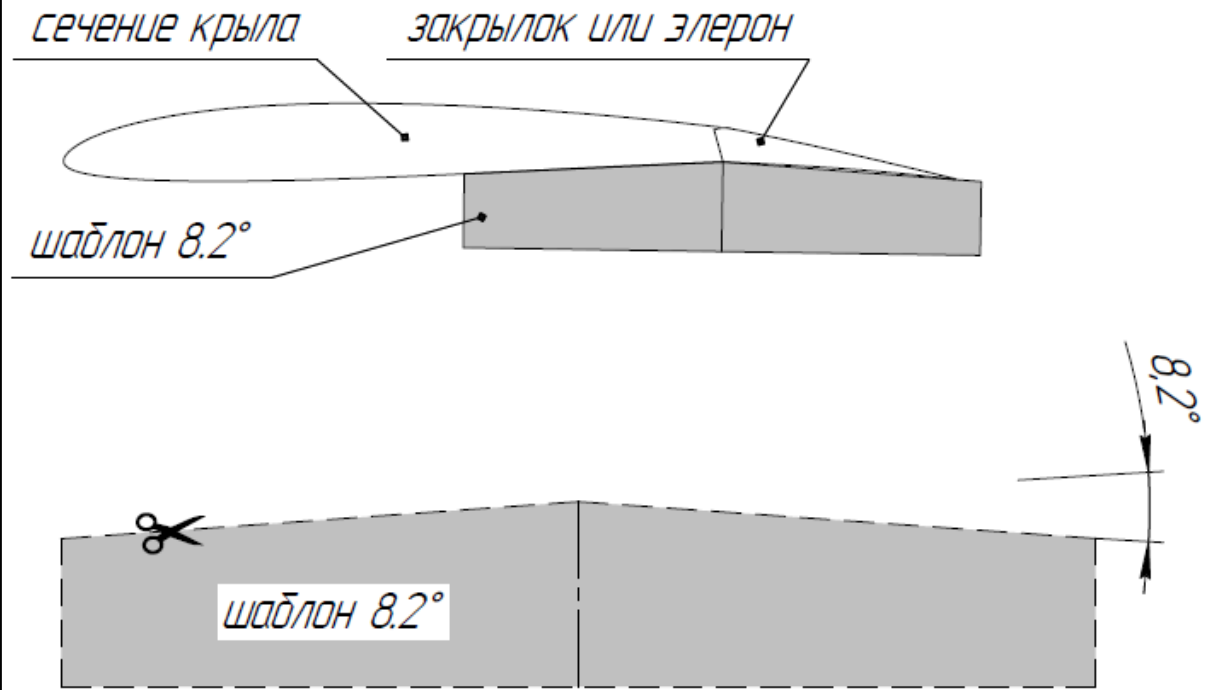
Thermal maximum wing airfoil cumber setup may significantly reduce plane flying stability. If you found that plane control become too difficult, reduce wing cumber.

Maximum wing cumber / flying stability are highly depending from plane's CG location.

### LAUNCH (START) template

That template is for launch setup. Amount of the wing cumber in Launch mode depends from tow hook position, current wind conditions/environments, power capability of the tow source (winch or towers). Launch setup should be applied by assigned switch.

# Thermal



# Start

