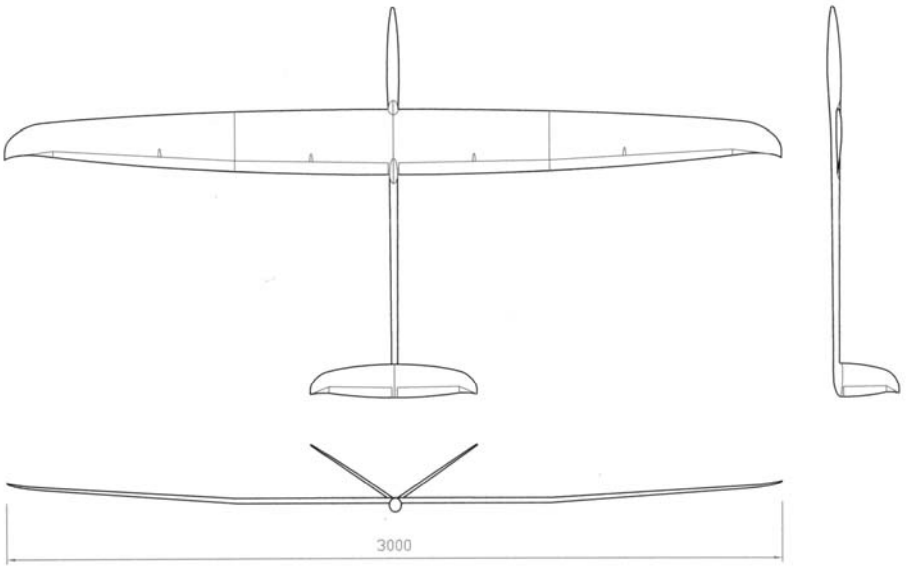
Wing span [mm]:	3000
Aspect ratio:	14,67
Wing area [dm2]:	61,33
Wing loading:	42,4-66,8
Weight [g]:	2600-4100
Airfoil:	VS1



BUILDING INSTRUCTION

ERWIN XL

CONTENTS

DATA

ASSEMBLING THE MODEL

BEFORE THE FIRST FLIGHT

DATA

1. Kit – Contents

Fuselage, in two parts
Wing, in two parts
V-Tail

Steel-connector, 2 pieces
Carbon-connector, 2 pieces

Covers for servos on wing, 4 pieces
Covers for servos on v-tail, 2 pieces

Radio board (for receiver, accumulators and ballast)
Installation frame for Hitec HS-125 und HS-5125, 4 pieces
Assembly board
Levers for rudders, 6 pieces

Screws, 4 pieces, for fixing the wing
Screws, 2 pieces, for fixing the v-tail
Screw and nut for fixing the radio board

Building instruction

2. What else do you need:

Controls of the wing:
Connectors for push rods, M2,5mm, 8 pieces
Welding rod, d=2mm

Controls of v-tail:
Steel wire, d=1,5mm

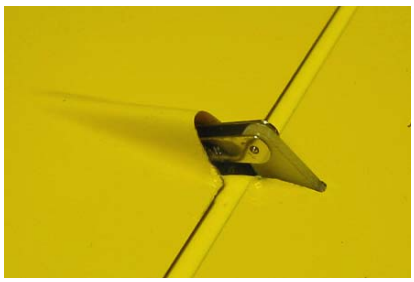
Hook for winch start

Hook for winch start

On-off switch / socket for loading
Cables
Cable for antenna, possibly steel wire for extension of antenna
Plugs

Epoxy-glue (for example UHU 300 endfest or Stabilit, no fast hardening epoxy resin)
Cotton flocks to thicken glue

Tape



Connector for push rods, M2,5mm

3. Electronical equipment

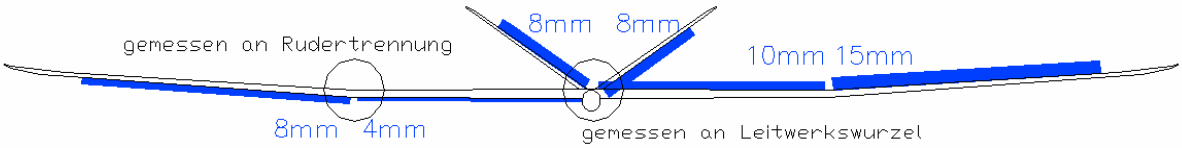
Servos for the wing
- Hitec
  - HS125
  - HS5125
- Volz
  - Wing Maxx
  - Wing Star

Servos for the v-tail	Hitec
	HS55
	HS56HB
	HS65HB
	Robbe
	S3108
	Graupner
	C2081
	C261
Receiver:	Graupner DS19
	Simprop Scan 7
	Schulze 835
Accumulators:	2500 mA/h NiMh
	3700 mA/h NiMh

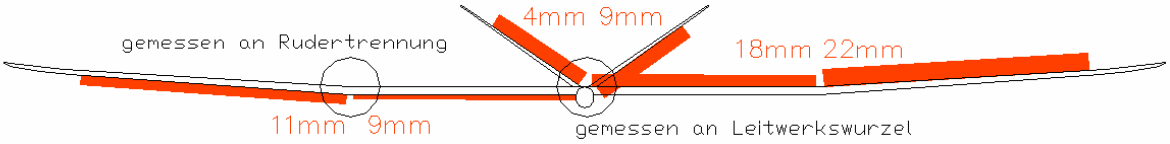
4. Settings for the first flight

Centre of gravity: 100mm
Centre of gravity, calculated: 94-111mm
Difference in angle of attack: +1°
Hook for winch start: 100mm
(measure from the leading edge of the wing to the back)

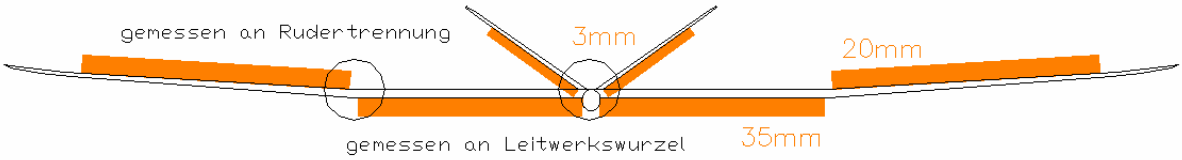
Ailerons und flaps (soft)
(measure between aileron and flap and on deepest point of the elevator)



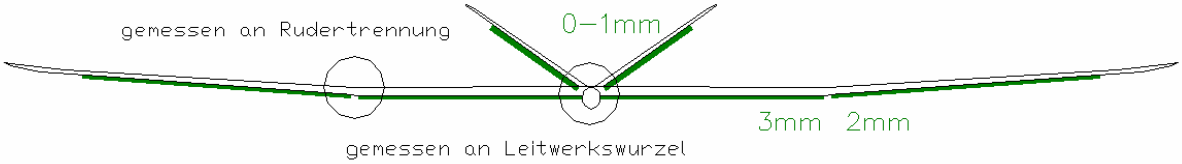
Ailerons und flaps (strong / dual rate)
(measure between aileron and flap and on deepest point of the elevator)



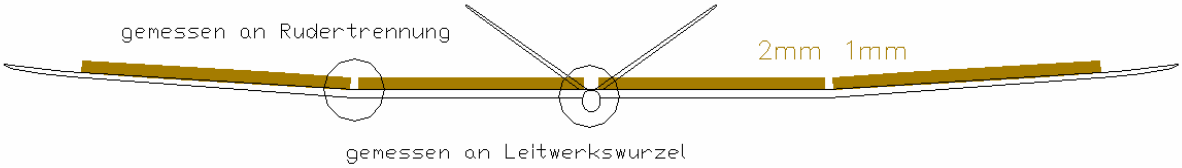
Butterfly (landing position)
(measure between aileron and flap and on deepest point of the elevator)



Flaps positive
(measure between aileron and flap and on deepest point of the elevator)



Flaps negative
(measure between aileron and flap and on deepest point of the elevator)



ASSEMBLING THE MODEL

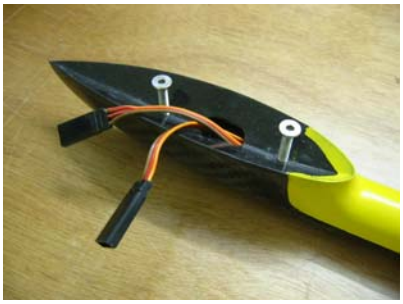
5. V-tail

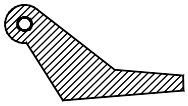
The v-tail is ready prepared with holes for screws to be fixed on the fuselage.

Install the servos for the elevator in the v-tail.

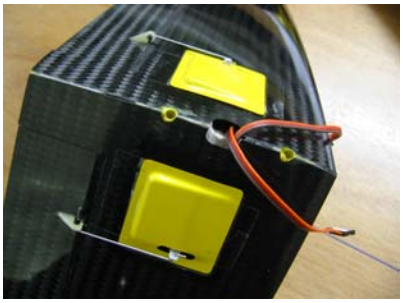
You still have to make a hole for the cable in the v-tail and in the fuselage.

For the connection to the control surfaces use the levers enclosed and a steel wire. (Gluing of levers see page 10)





Fix the covers of the servos with a double-sided adhesive. You still have to cut the cover where the lever of the servo pushes through.



6. Fuselage

Check the alignment of the V-tail regarding the axis of the fuselage, so that it is fixed symmetrically.

To do this, mount v-tail and wing on the fuselage. Look at Erwin XL from the front and slowly lower the tail, until the ends of the elevator disappear behind the wing.

If both ends of the elevator disappear at the same time, the v-tail is aligned correctly.

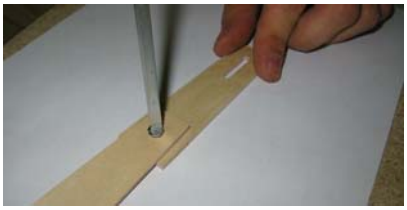
If the v-tail isn't aligned correctly, chamfer the edges of the fitting. Put the two parts of the fuselage together again and turn one part until the v-tail is mounted symmetrically.

Then glue the parts together. Use epoxy-glue and some cotton flocks to thicken the glue.

7. Installation of electronical components

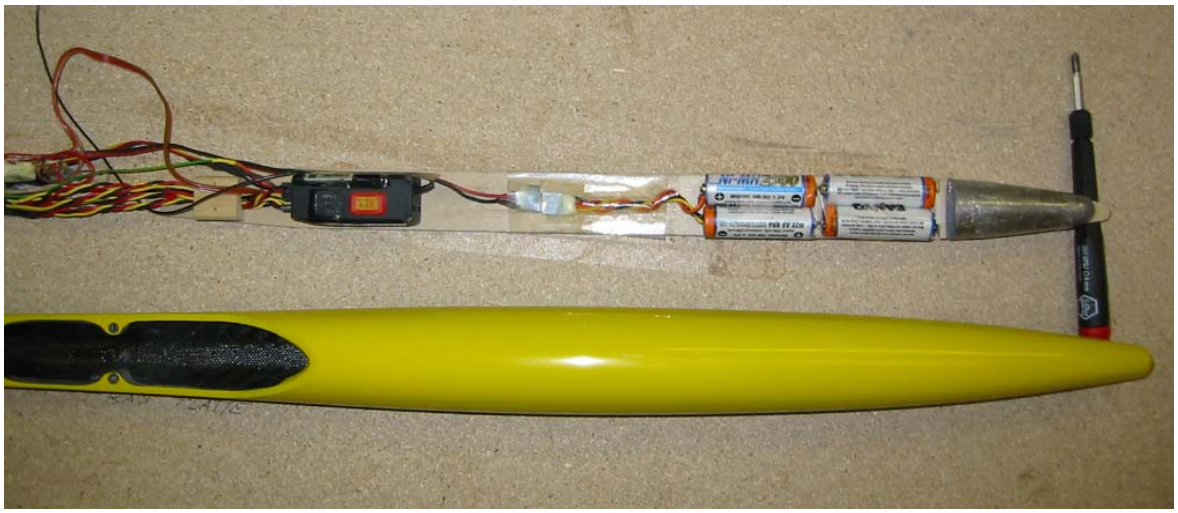
First you have to glue the assembly board inside the fuselage, as the radio board is fixed to the assembly board. The assembly board also serves to fix the hook for the winch start.

Knock the nut enclosed into the hole of the assembly board. Mount the radio board to the assembly board with the short screw enclosed.



Grind the joins and put epoxy-glue on them. Then push both boards into the fuselage (radio board in front) as far as they will go.

Suggestion for the installation on the radio board:



Mount everything on the board and then thread it inside the fuselage.

If you want to fix the wing to the fuselage by tape (see point 11), there will be tension on the cable when the wing loosens in case of a crash. To avoid this, we recommend to clamp the cables to the radio board with a block of wood. In this way the plug can be loosened without putting tension and possibly causing damage to the electronic parts.

The receiver should be situated close to the opening in the fuselage. In this way, you can change the frequency easily.

For changing the quartz loosen the screw and pull the radio board about 5cm to the back.

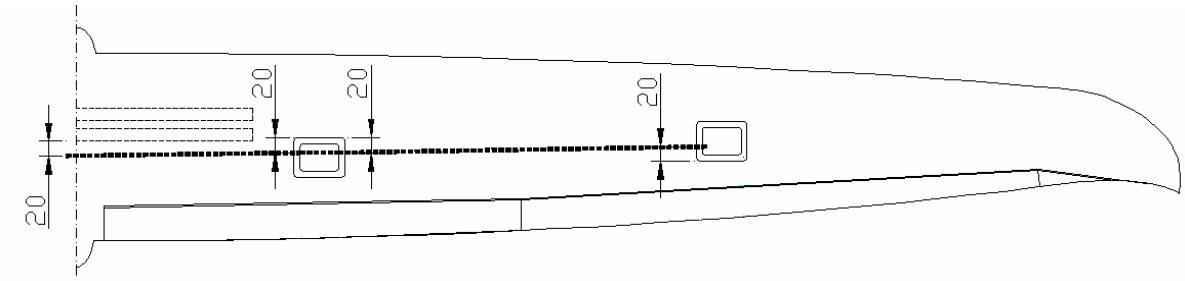
If you want an easy handling of the ready arranged glider, we recommend to mount the switch and the sockets for loading and scanning on a small board as shown.

Ready installed switch and socket on the outside of the fuselage.

8. Wing

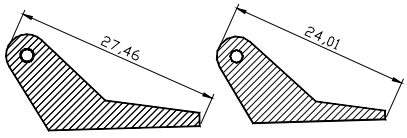
Use the wooden frames enclosed for the installation of the servos Hitec HS-125 und HS-5125.

Lead the cable through the wing as shown below.



The connection to the levers on the rudder goes crosswise through the wing.

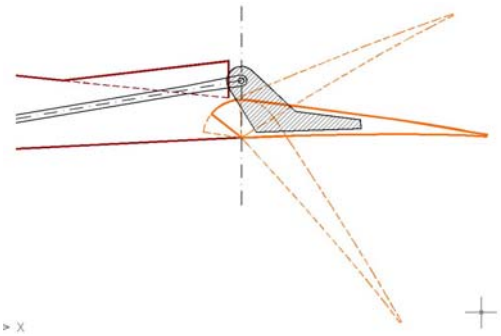
Before you glue the lever to the rudder, mill a slit of about 10mm in the rudder as shown on the picture to the right.



Flap Aileron

For gluing the lever use epoxy-glue with cotton flocks.

When fitting the lever in the correct position, notice that the hole in the lever should be situated vertically above the hinge line.



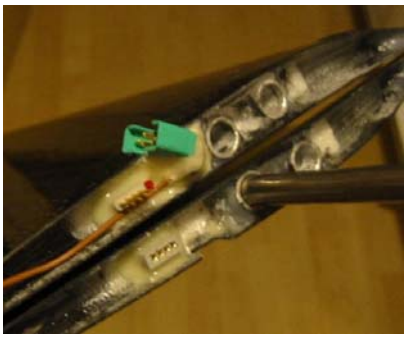
To connect the servos to the levers use two connectors M2,5mm. In between, use a slightly bended welding rod (diameter 2mm), which you solder to the both connectors.

To find the right length of the welding rod put all servos in 0-position. If the length isn't exact after soldering, you can heat the soldered point with the soldering iron until the the wire can be moved to the correct position.

There are two possibilities to connect the cables between fuselage and wing:

- Either you lead one cable out of each part of the wing, length about 20mm, and connect them with two plugs to the fuselage.

If the wing loosens in case of a crash, there might be tension on the cable. To avoid this, we recommend to connect wing and plug with a string, that is a little shorter than the cable.



- Or you put a plug between the halves of the wing and connect the wing to the fuselage with one plug.

(The picture shows this solution on the wing of Erwin-2m))

Notice that gluing the plug as shown is not recommendable, if you want to mount the wing by tape. In case of a crash the wing may swing out to the side and the plug as well as the fuselage could be damaged.

Fix the covers of the servos with a double-sided adhesive.

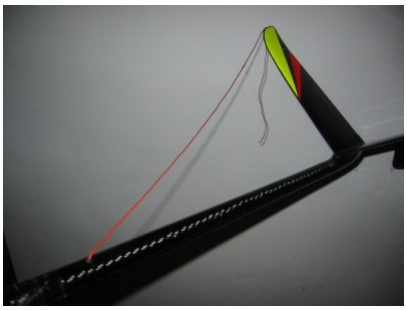
In order to move the triangular ends of the ailerons, you can bend a piece of steel wire (1mm) and glue it into the end of the aileron as shown. Let the wire jut out about 6mm.

9. Installation of antenna

As ErwinXL is completely made of carbon, a part of the antenna must be situated outside the model.

One possiblity is to „extend“ the fuselage at the rear end with a steel wire of about 450mm. Fix the end of the antenna to this steel wire.

Another solution is to fix the antenna to the end of the elevator. Lead the antenna inside the fuse behind the wing and then leave the fuselage. You should add the length between receiver and the breakthrough of the fuselage to the end of the antenna, so that the original length of the antenna is completely outside the fuselage.



Always test the reception on ground before you fly!

BEFORE THE FIRST FLIGHT

10. Ballast system

You can easily change the weight by varying between the different connectors.

You should always use two connectors when flying Erwin XL.

If the glider accelerates too slowly, don't hesitate to add further weight. Erwin XL can do well with more weight, in the air as well as when landing.

2x carbon short, 150g

1x carbon short, 1x steel short, 450g

1x steel short, 1x steel long, 1125g

2x steel long, 1500g
(Order an additional steel bar if you need it)

11. Fixing of the wing

For flights on the slope we recommend fixing the wing by tape.

In case of a crash, the tape will break, the connecting plug between fuse and wing will loosen, and further damage will be avoided. Normally, you can continue flying without problems.

Use 6 layers of tape to fix the wing to the fuselage. Don't use low price products. (The tape should not rustle.) We take tapes made by "Tesa".

Note the correct installation of the plug between fuselage and wing. (see point 8.)

If you fly in the plain and want to make winch starts, fix the wing to the fuselage with the screws enclosed.

12. Check list before starting:

1. Check centre of gravity (the angle of attack is pre-set)
2. Check rudders:
   Do rudders move in the correct direction?
   Check the greatest swings of the rudders
3. Check reception:
   Leave the antenna inside the radio control and go away from the glider up to a distance of about 60m. The rudders should not tremble.