

# Overview Description

Striver mini VTOL is a 7kg vertical take-off and landing fixed wing, which inherits the safety and practical characteristics of the Fighter.

The MFE team tried their best to repeatedly polish in the fields of flight stability, power configuration, and quick release and portability.



# Basic Parameters

Material: EPO, EVA, carbon fiber, engineering plastics, etc.

Wingspan: 2100mm

Max. takeoff weight: <7.5kg

Rotor arm: 744mm

Maximum takeoff altitude: 3000m(altitude)

Fuselage height: 156mm (without foot pads) Practical lift altitude: 4500m(altitude)

Fuselage length: 1200mm

Wind resistance: Class 5 (normal operation)

Wing area: 59dm<sup>2</sup>

Takeoff mode: vertical takeoff and landing

Cruising speed: 18-21m/s

Load compartment size:180×150×110mm

Maximum load: 1kg

Transport box size: 1.08×0.35×0.48m

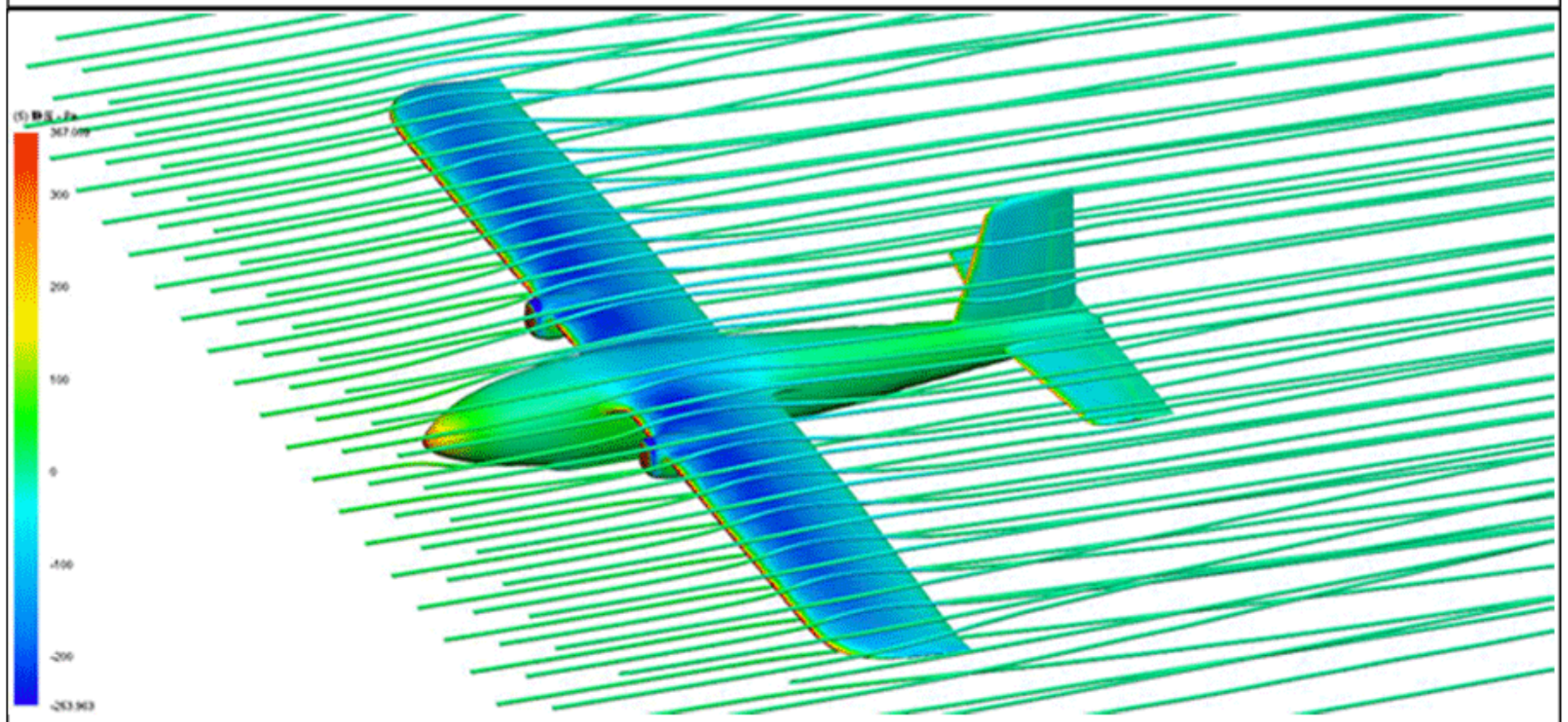
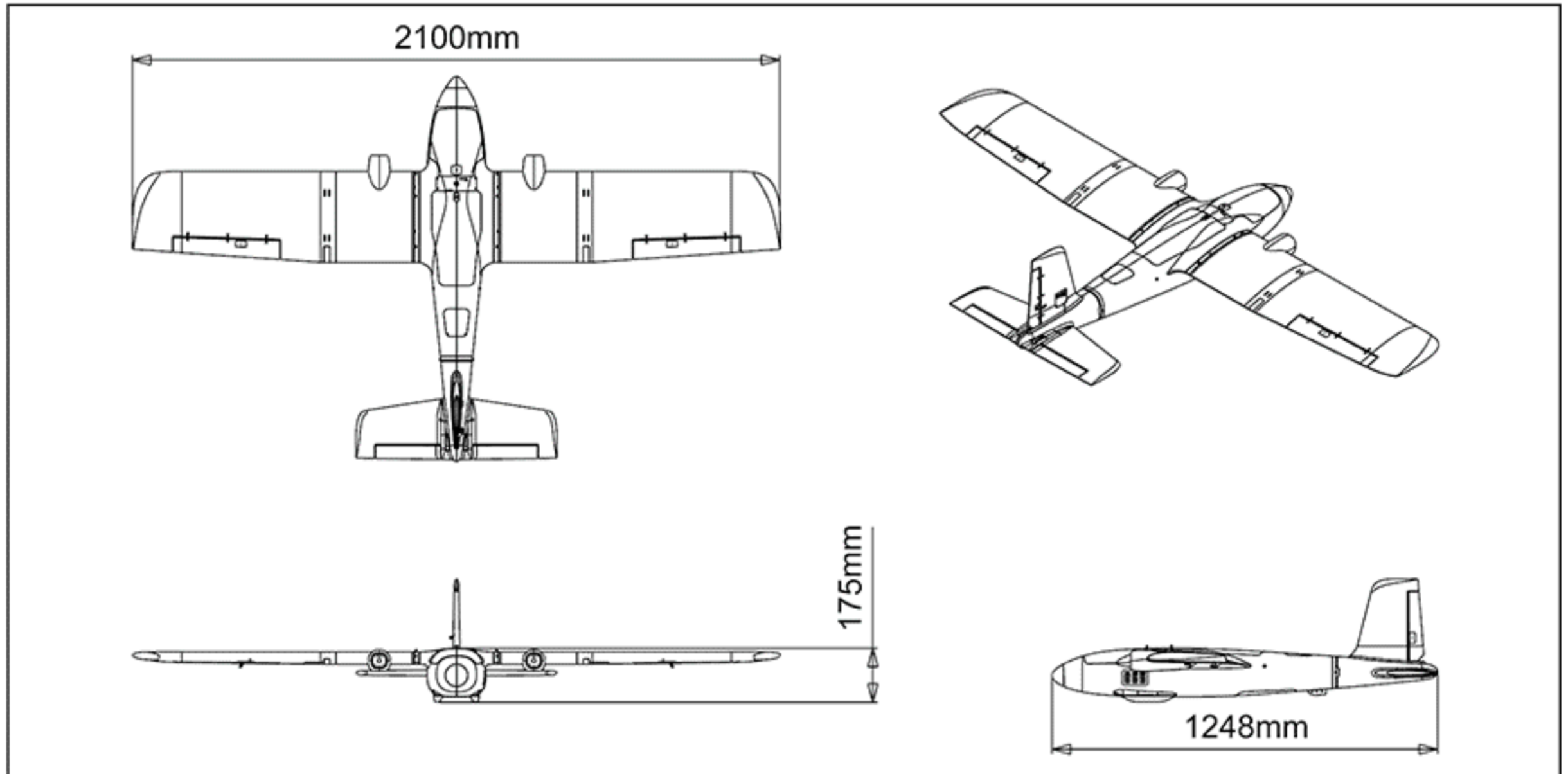
Disassembly and assembly method: tool-less quick disassembly

Range performance1: 82min/95km (speed 19m/s, load 600g, battery 6S@16000mah, takeoff weight 6.5kg, altitude 500m)

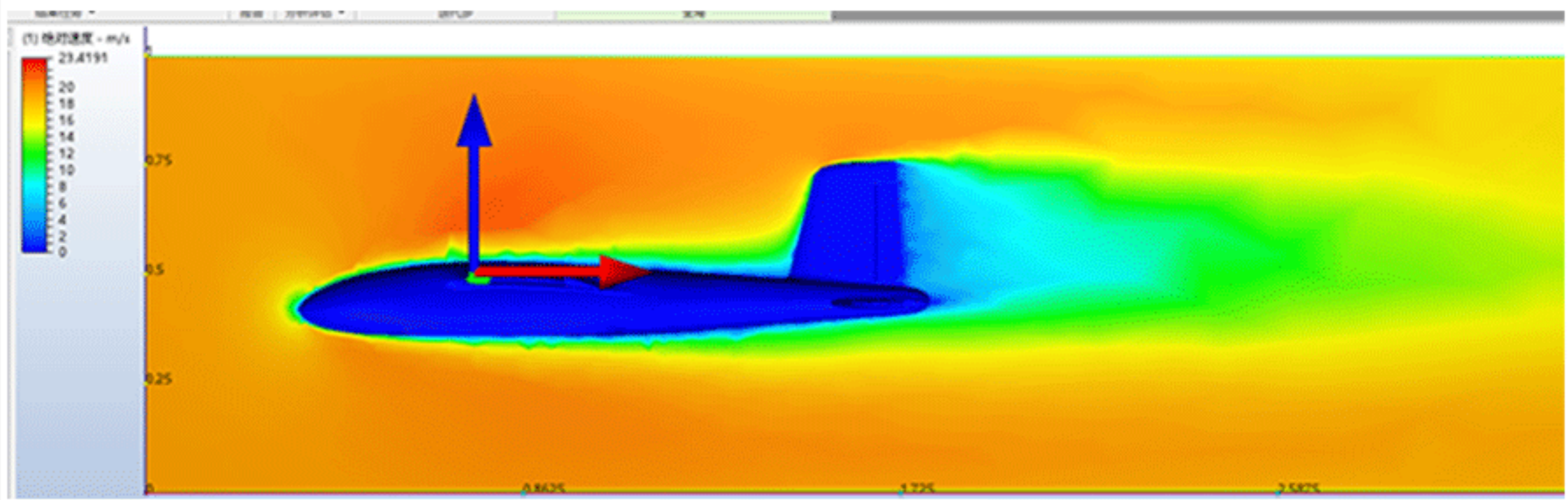
Range performance 2: 112min/127km (speed 19m/s, load 600g, battery 6S@22000mah, take off weight 7.1kg, altitude 500m)

# Efficient Aerodynamics

On the basis of the conventional inverted T layout, the Striver mini VTOL optimizes the aerodynamic shape and relative position of the wing, horizontal tail, vertical tail, and fuselage. The aerodynamic load distribution is reasonable, the increase of lift force reduces the drag significantly, and the flight efficiency is high.



The Striver mini VTOL adopts a streamlined shape as a whole. Under the condition of ensuring a stable flight attitude, the flight resistance is minimized.

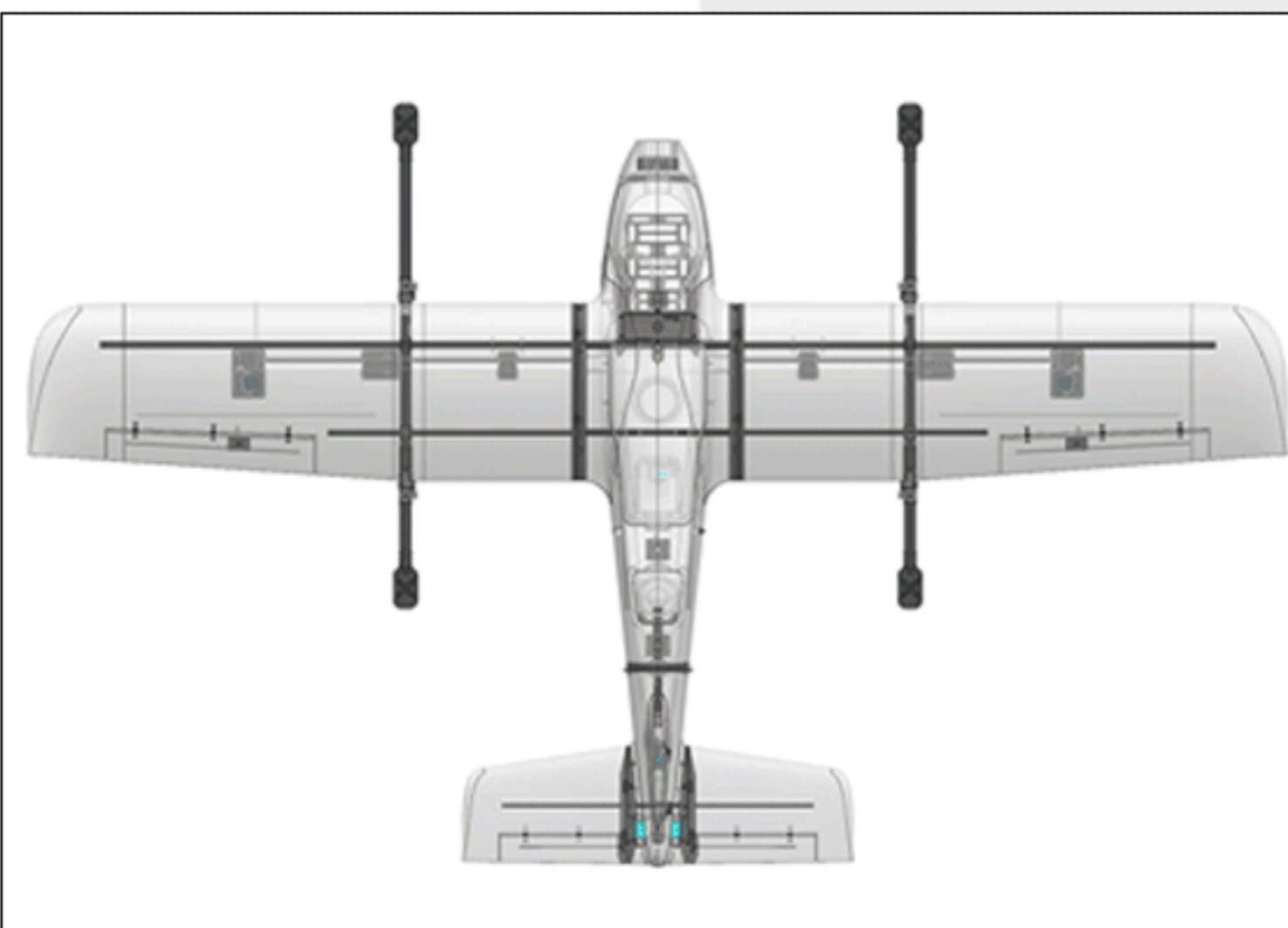


# Light but Stable



Large amounts of high-strength lightweight carbon fiber, wood board, and PC board are used in materials.

In terms of shape, a large number of embedded box structures are used to comprehensively improve the structural strength and rigidity of the body.



On the basis of "overload experiment", according to the structure and loading characteristics of the wing, tail, and fuselage.

Optimize the structure according to the g precision to minimize unnecessary weight.

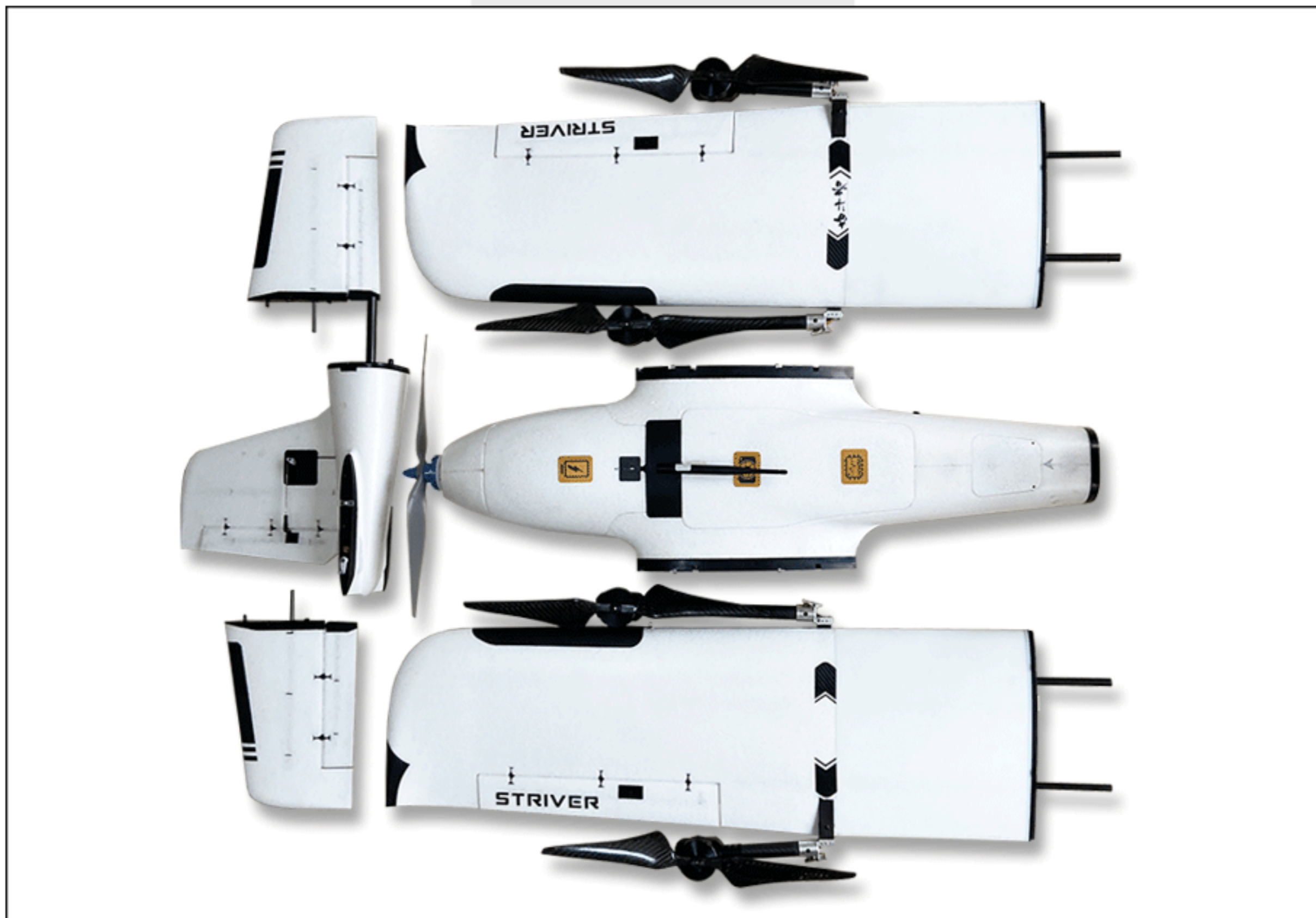
# Compatible with 2 flight modes

Striver mini VTOL supports 4+1 mode and 4+2 mode.



# Disassembly Quickly

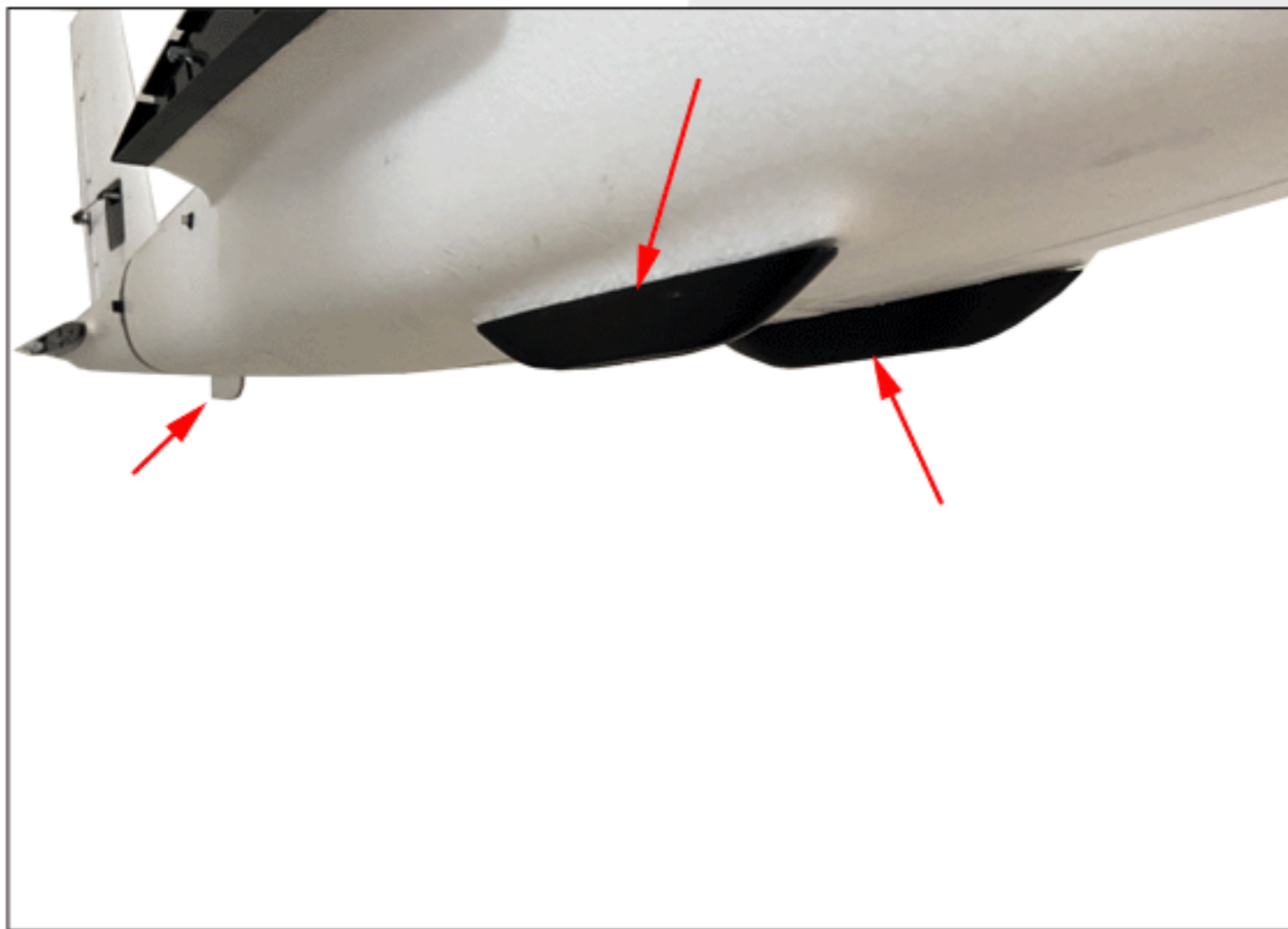
The wing and tail adopt tool-less quick disassembly structure to reduce the installation steps and shorten the disassembly and assembly time.



The inner liner of the packing box is made of high-magnification EPS foam. Light specific gravity, impact resistance, good shockproof effect, suitable for long-distance transportation.



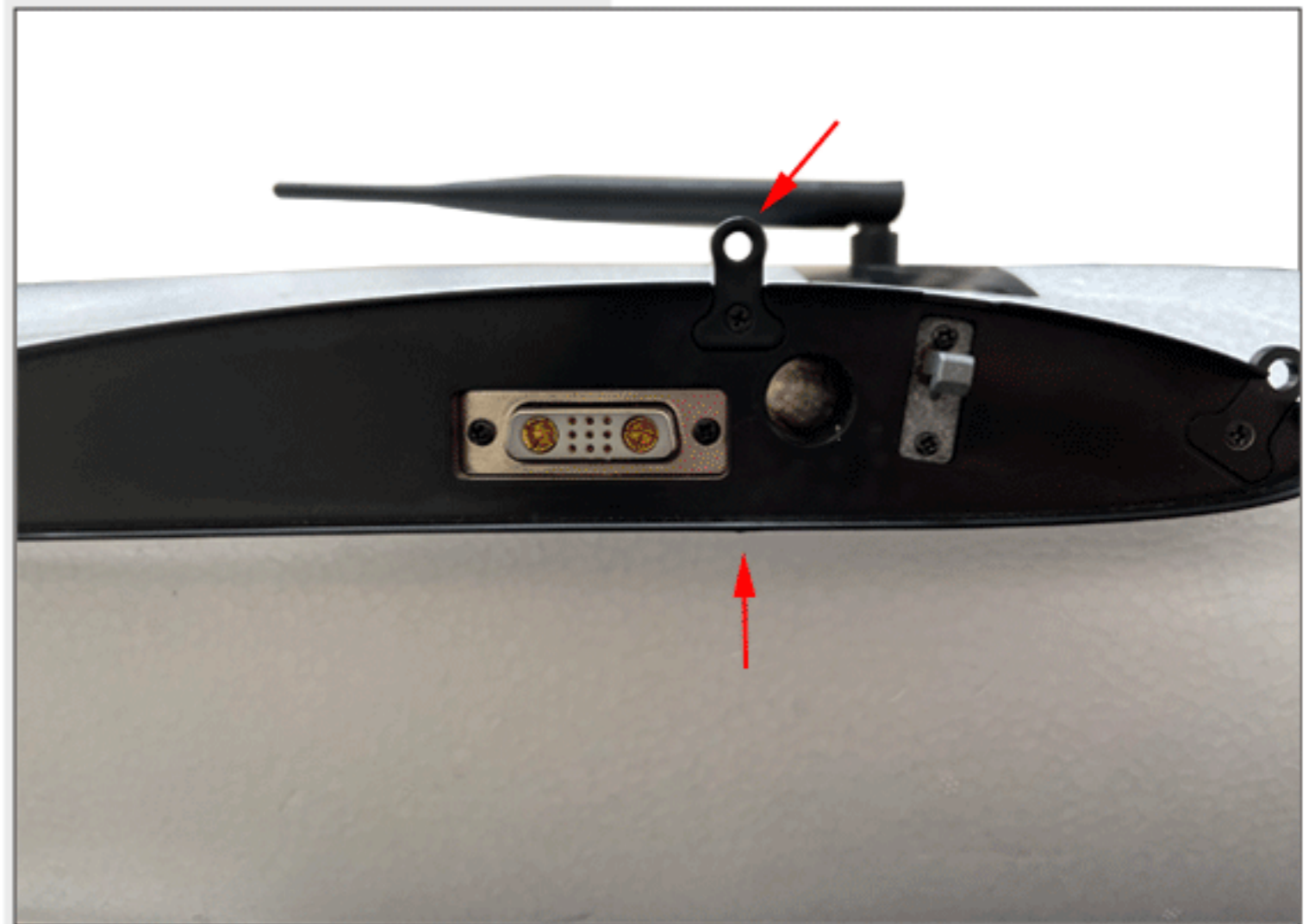
# Fuselage section



The bottom of the fuselage adopts a three-point type support mechanism, ground clearance high, not covering the camerhole, improve aircraft heading stability.

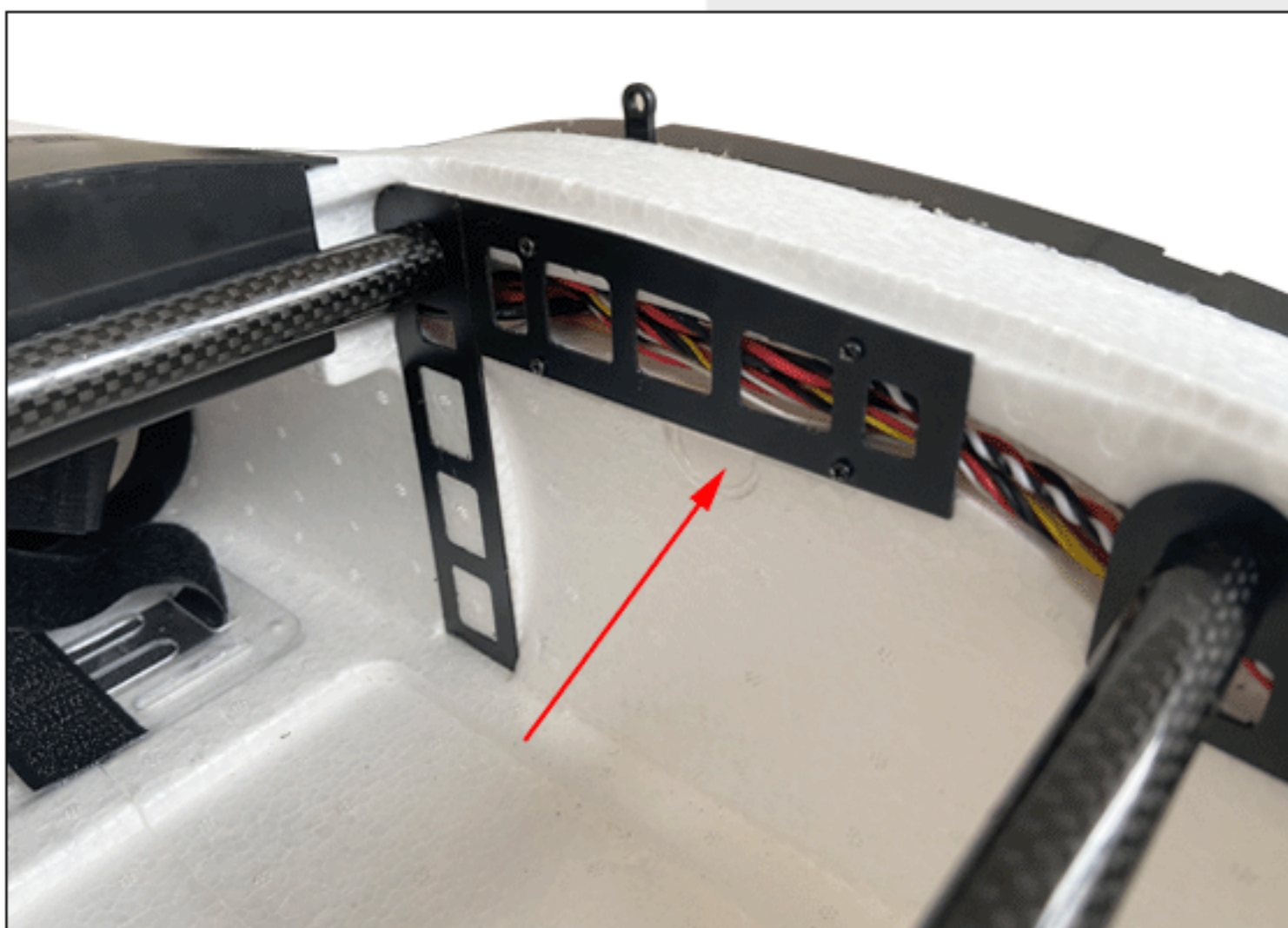
The center of gravity of the aircraft is in the fuselage under the center hook and wing root plastic projection (same location).

When the load is heavy, the lanyard is used to carry the center of gravity; when the load is light, the center of gravity of the wing is lifted by hand.



The inside of the fuselage is designed with a wire slot and a removable baffle.

It is convenient for the installation of the wires, and at the same time ensures the concise and efficient wiring in the cabin.



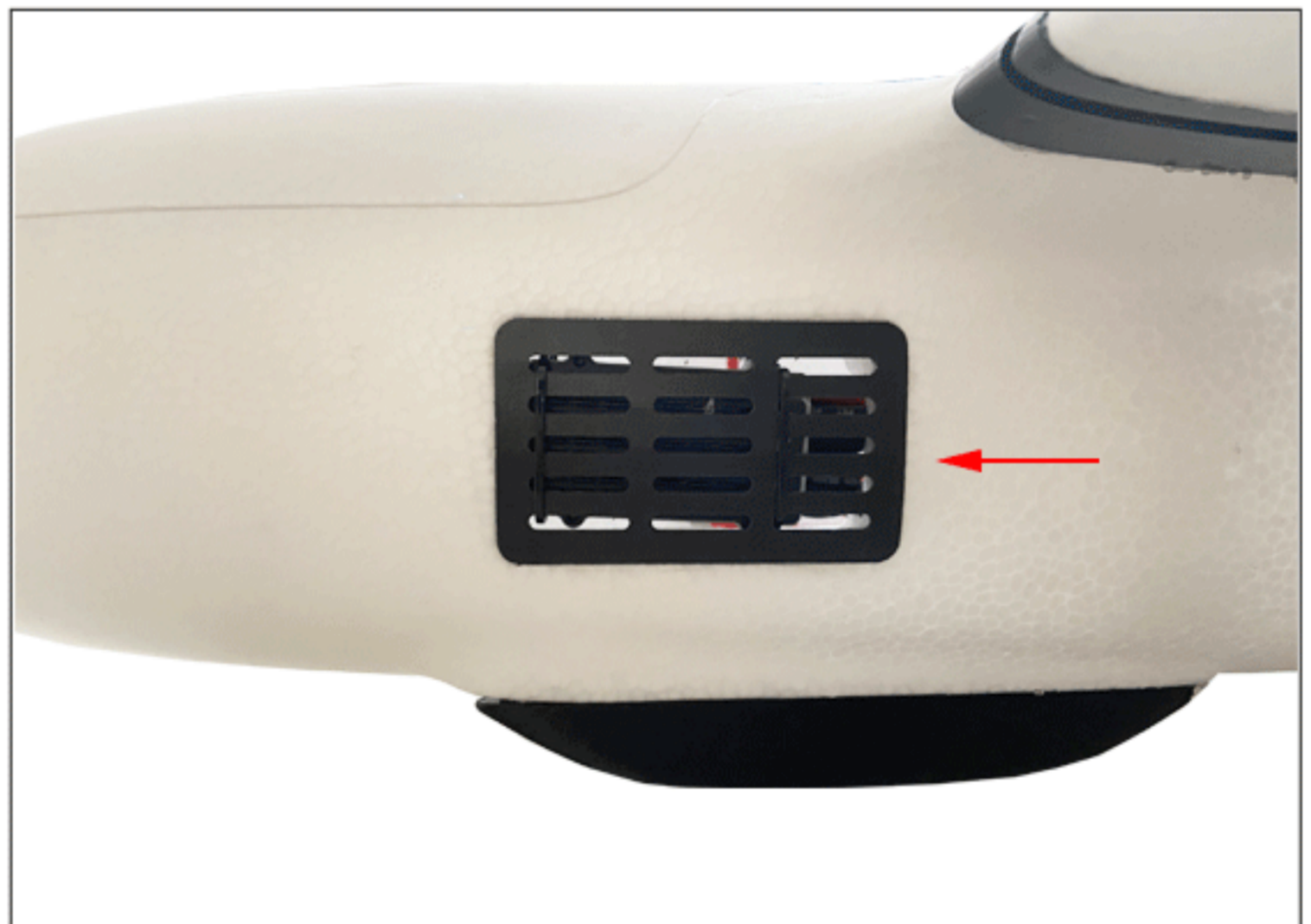


# Head Cabin

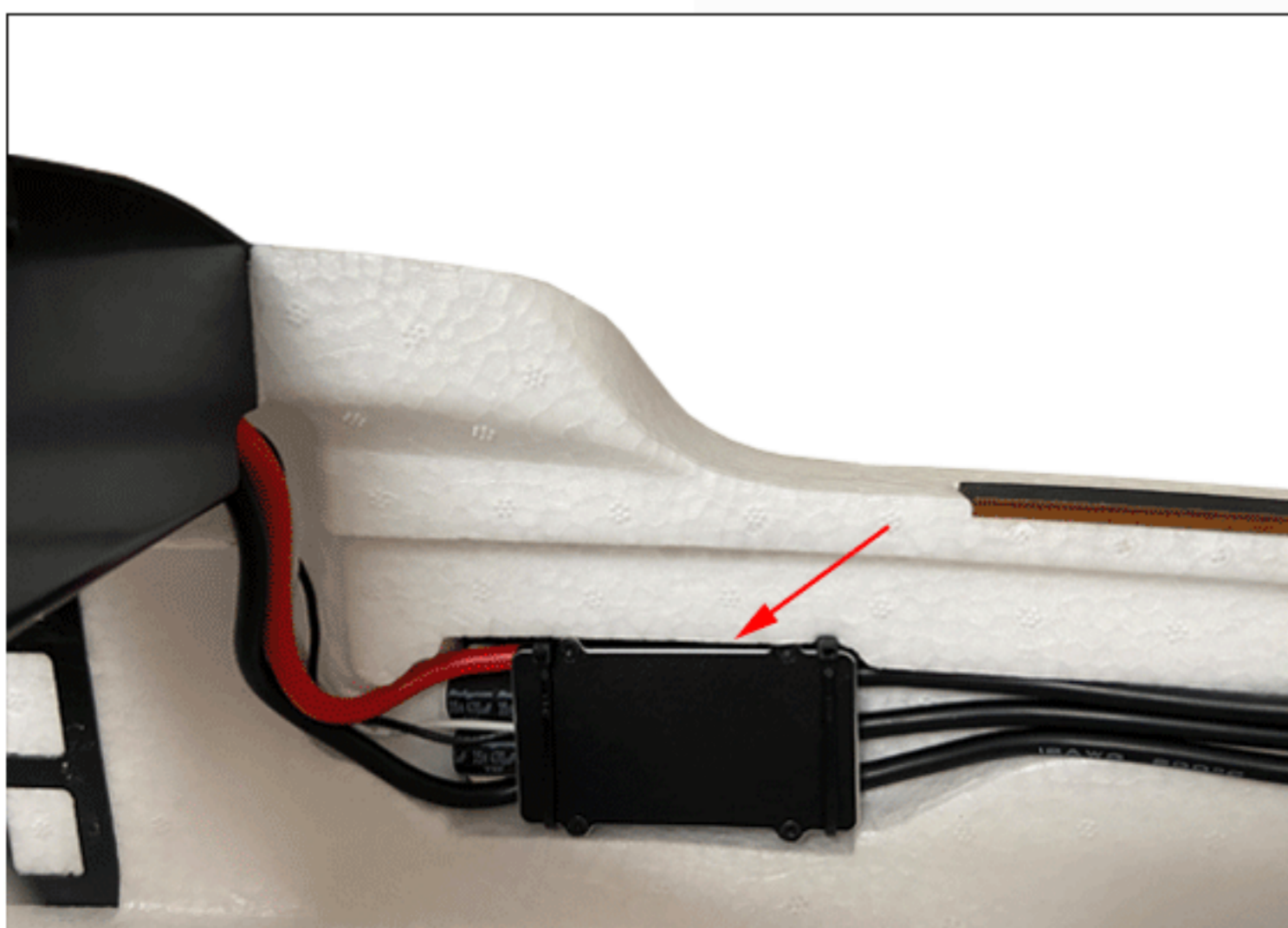


The motor base of the machine head is made of PC alloy plastic, which has strong impact resistance, and can support the outer rotor  $\phi 60\text{mm}$  motor at most.

The ESC cover adopts a hollow grid design, which is light in weight and good in heat dissipation.



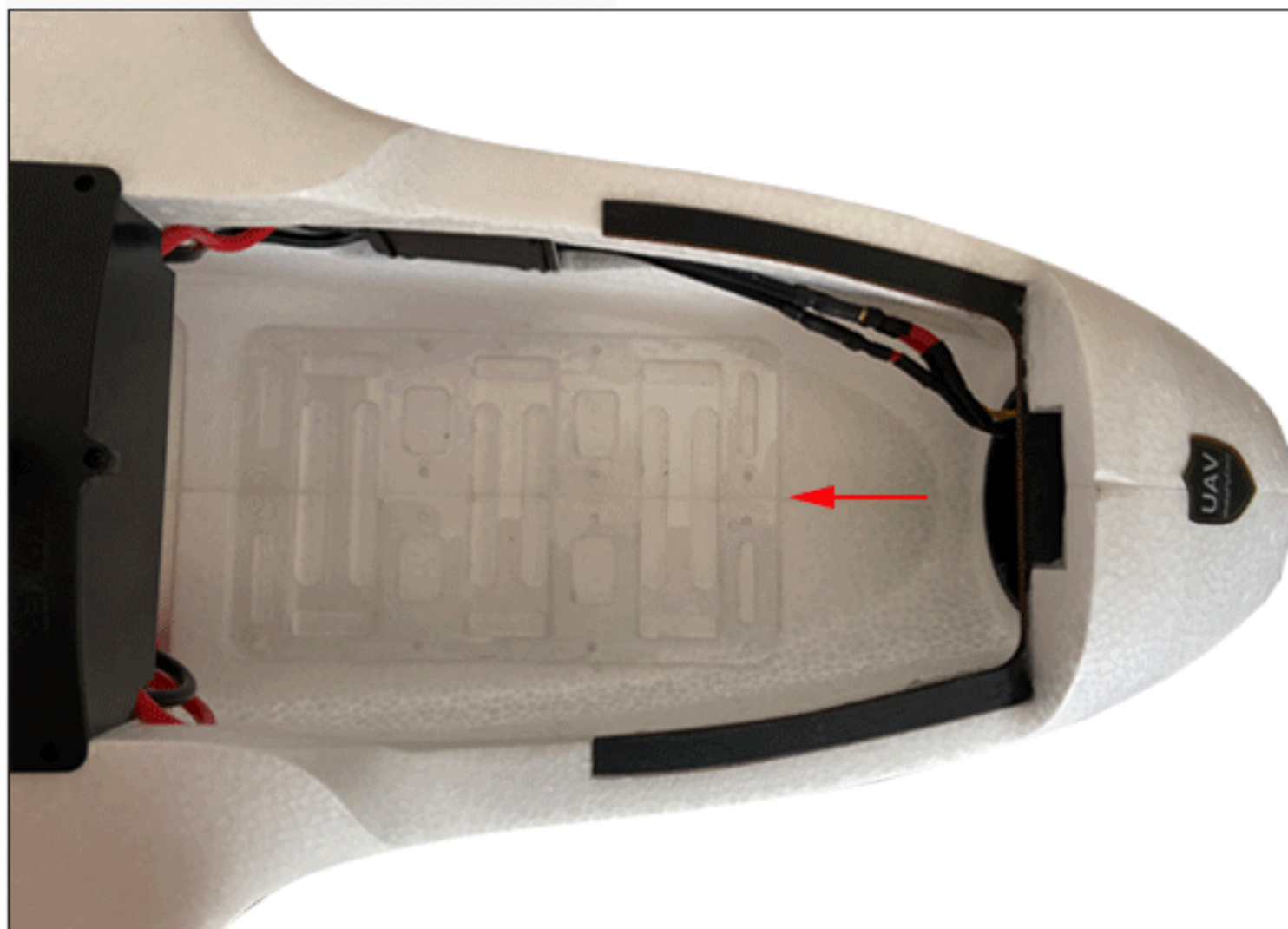
The ESC adopts a built-in design, and the maximum supported size is  $71 \times 38\text{mm}$ .



# Battery Cabin

The size of the battery compartment is 260×130×72mm, and the largest support 6S@30000mah battery, to provide the possibility of a longer range.

The battery holder is made of PC board CNC processing, which is light in weight and has good impact resistance.



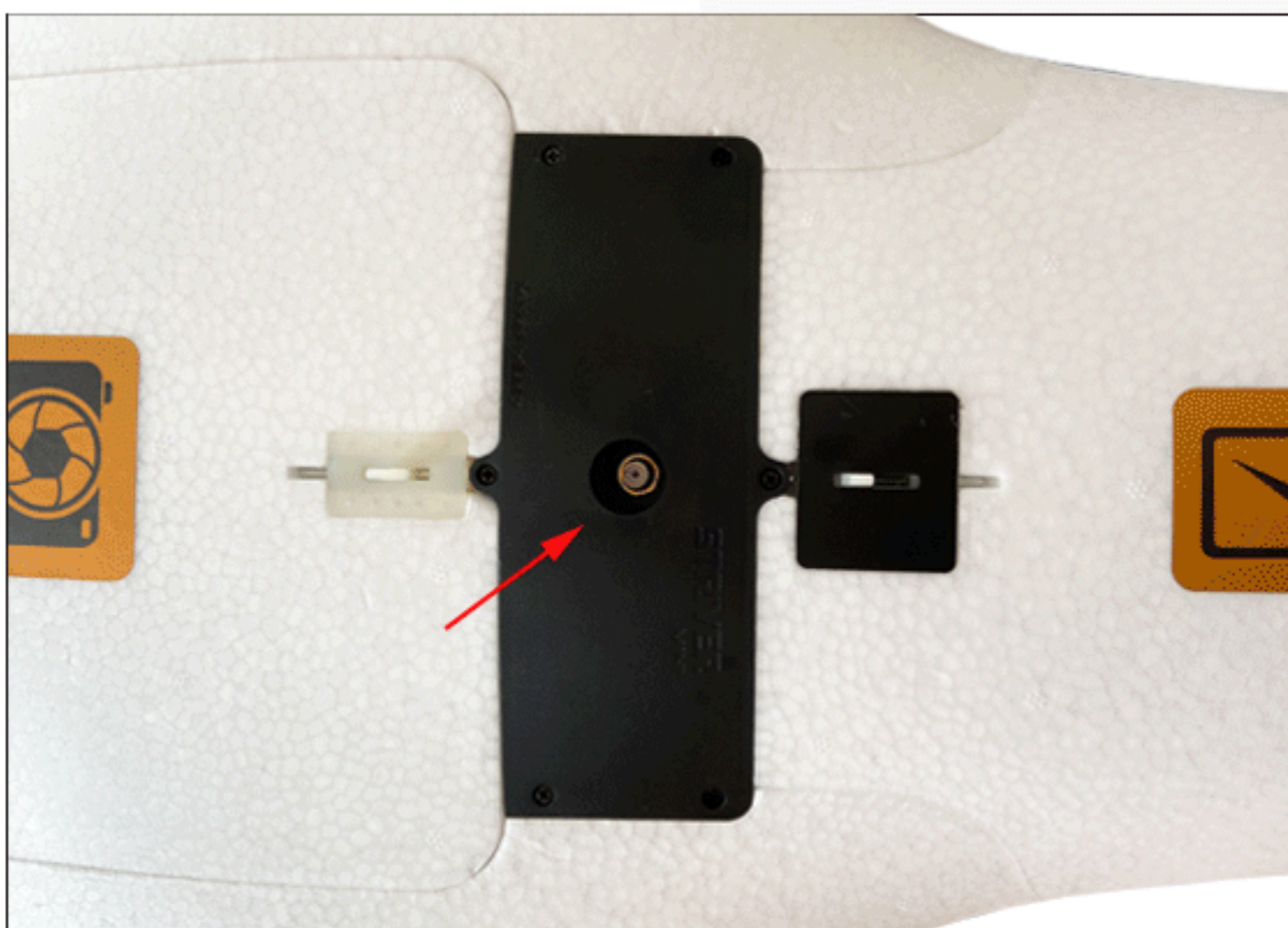
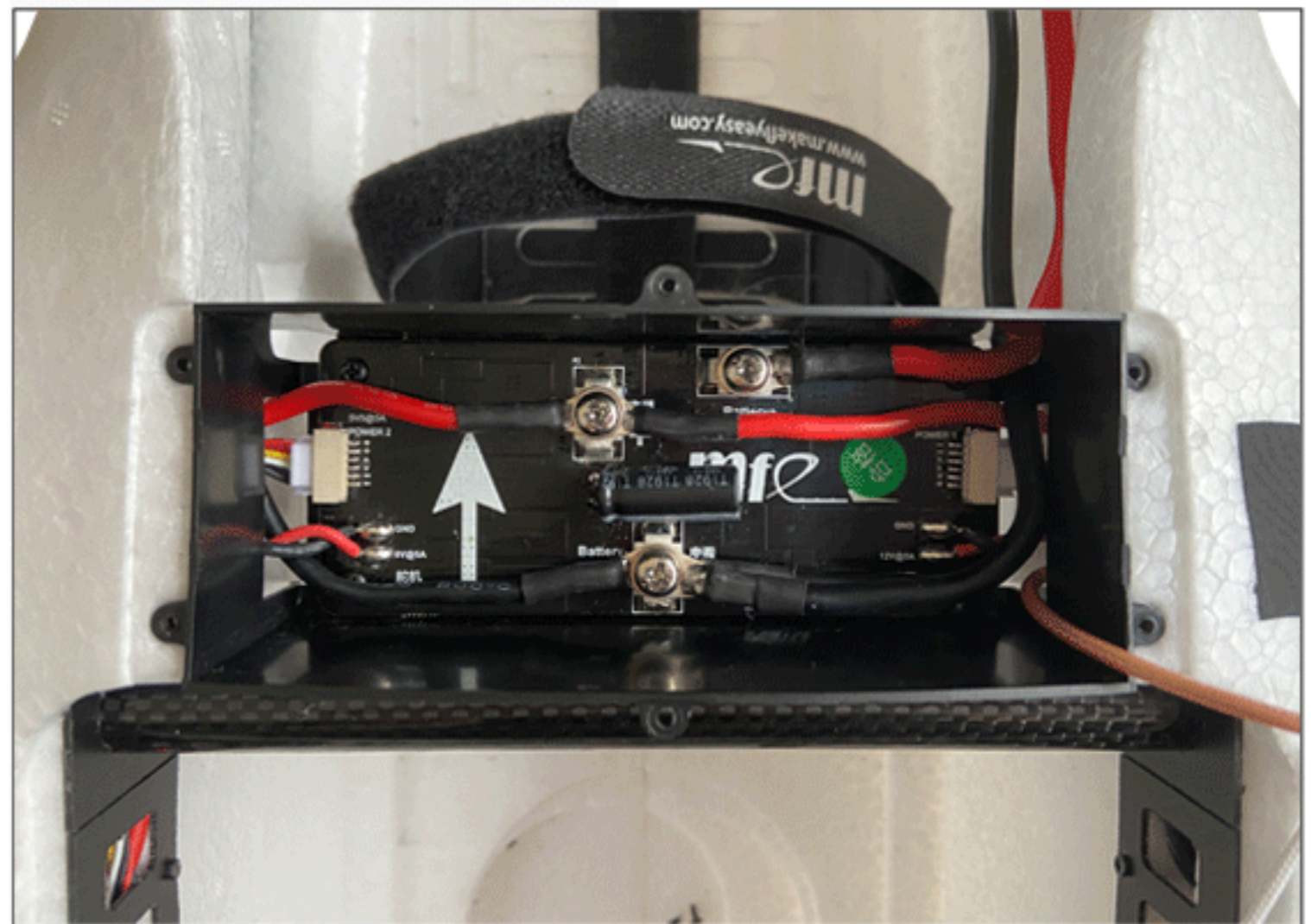
The battery ties have a reasonable layout, which is convenient for binding and unbinding, and effectively avoids entanglement.

# Distribution Cabin



The power distribution compartment is made of injection molded engineering plastic, improve the structural strength of the fuselage.

(Optional) 2-channel redundant flight control power supply integrated in the power distribution board, 1 way servo power supply, 1 way load power supply, shortened wire path, reduced soldering process, clean and tidy wiring.



The hatch is reserved for the digital transmission antenna hole, which is convenient to install and remove the antenna.

# Load Cabin



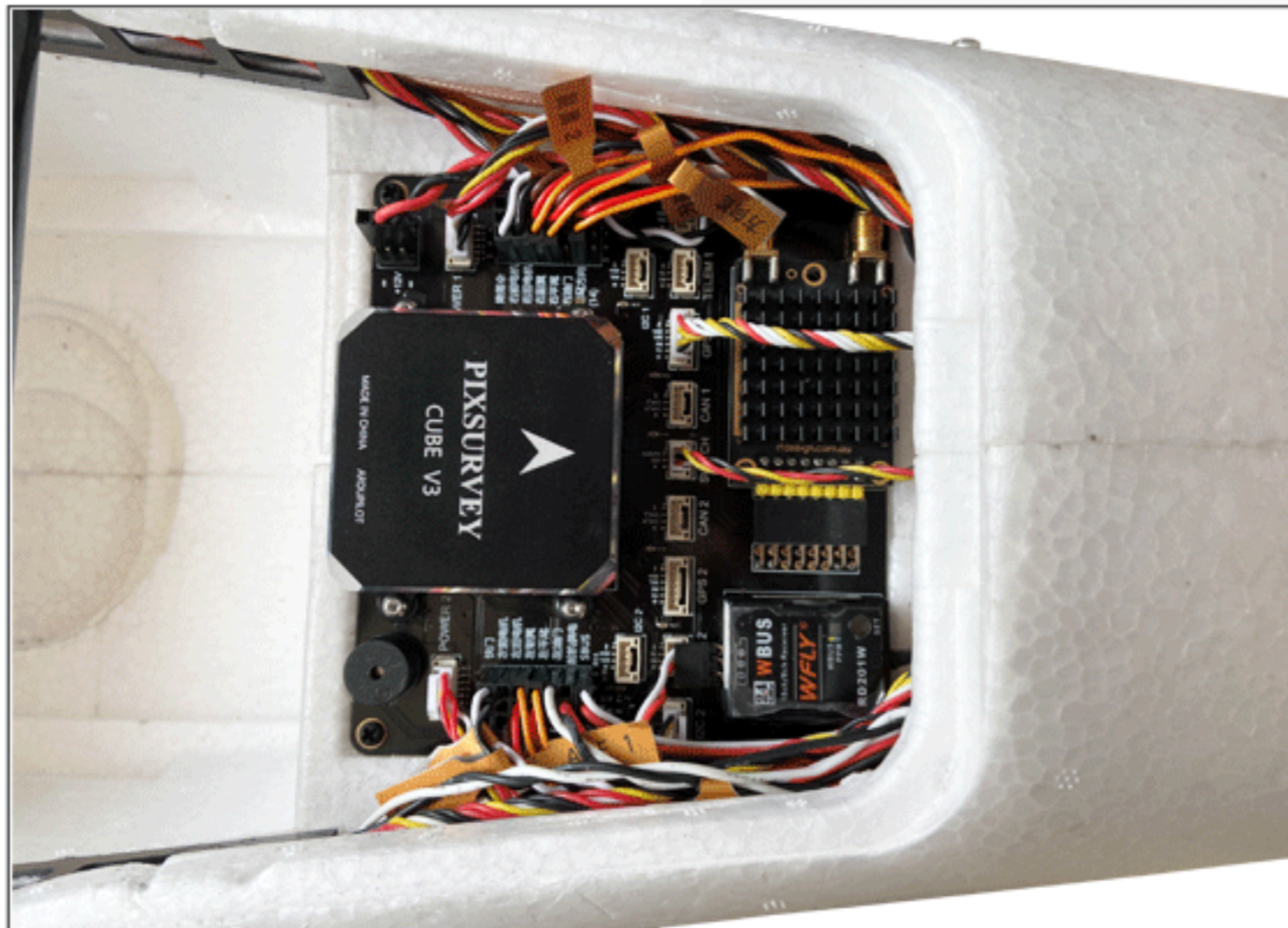
Load compartment size. 220×150×110mm. Can hold Sony A7R series cameras and five-lens tilt camera.

The auxiliary carbon tube adopts a tool-less quickrelease design, which is convenient for carrying larger loads.

Reserved for common lens cutting holes, easy to open the hole.



# Flight control Cabin



The flight control cabin adopts a platform-based open design, compatible with open source/commercial flight control installation.

(Optional) The center panel can make full use of the space layout, extremely Optimize the order and direction of the wires.

(Optional) Flight control protection cover to prevent foreign objects from falling in, both beautiful and dust-proof.

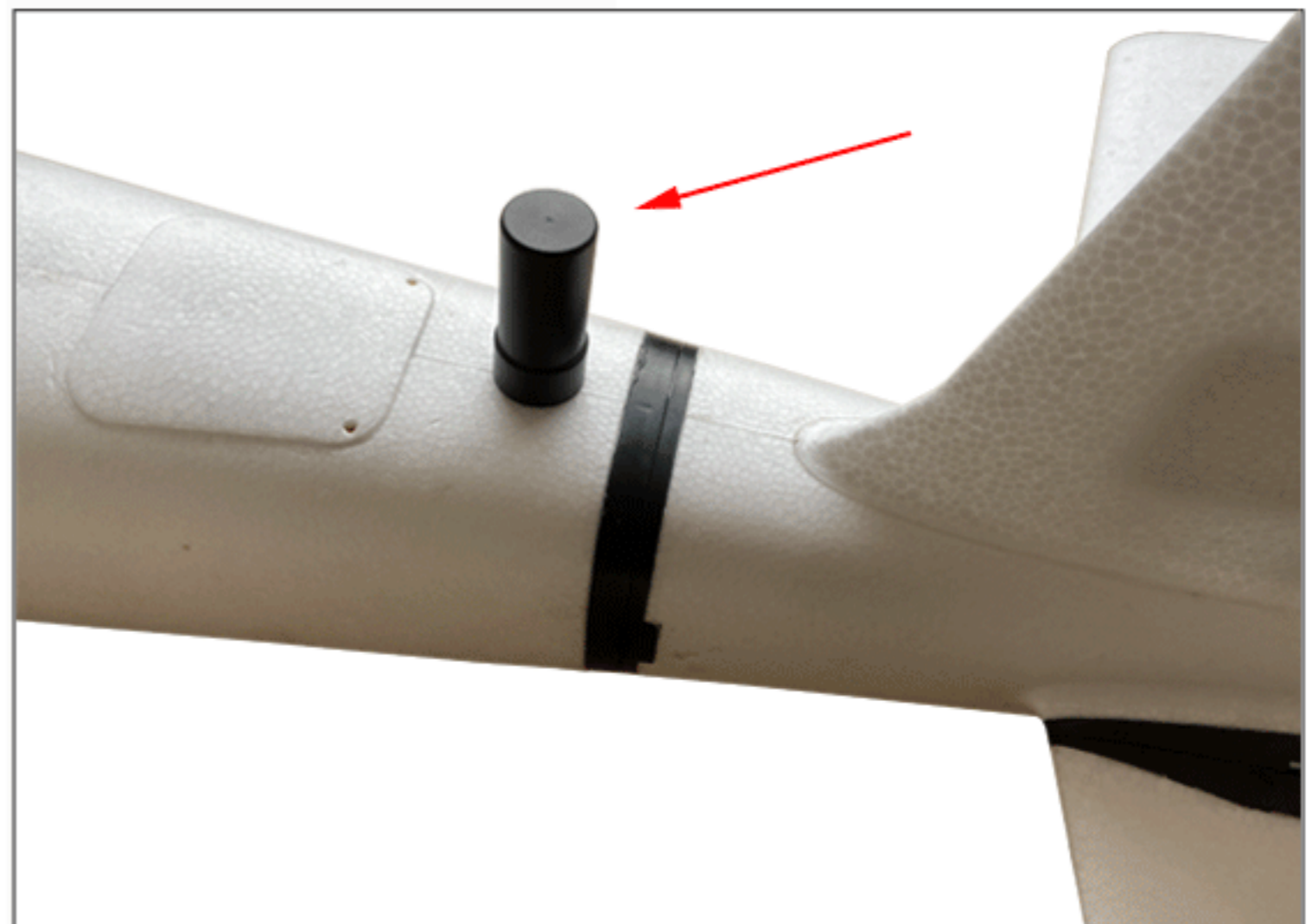


# RTK/GPS

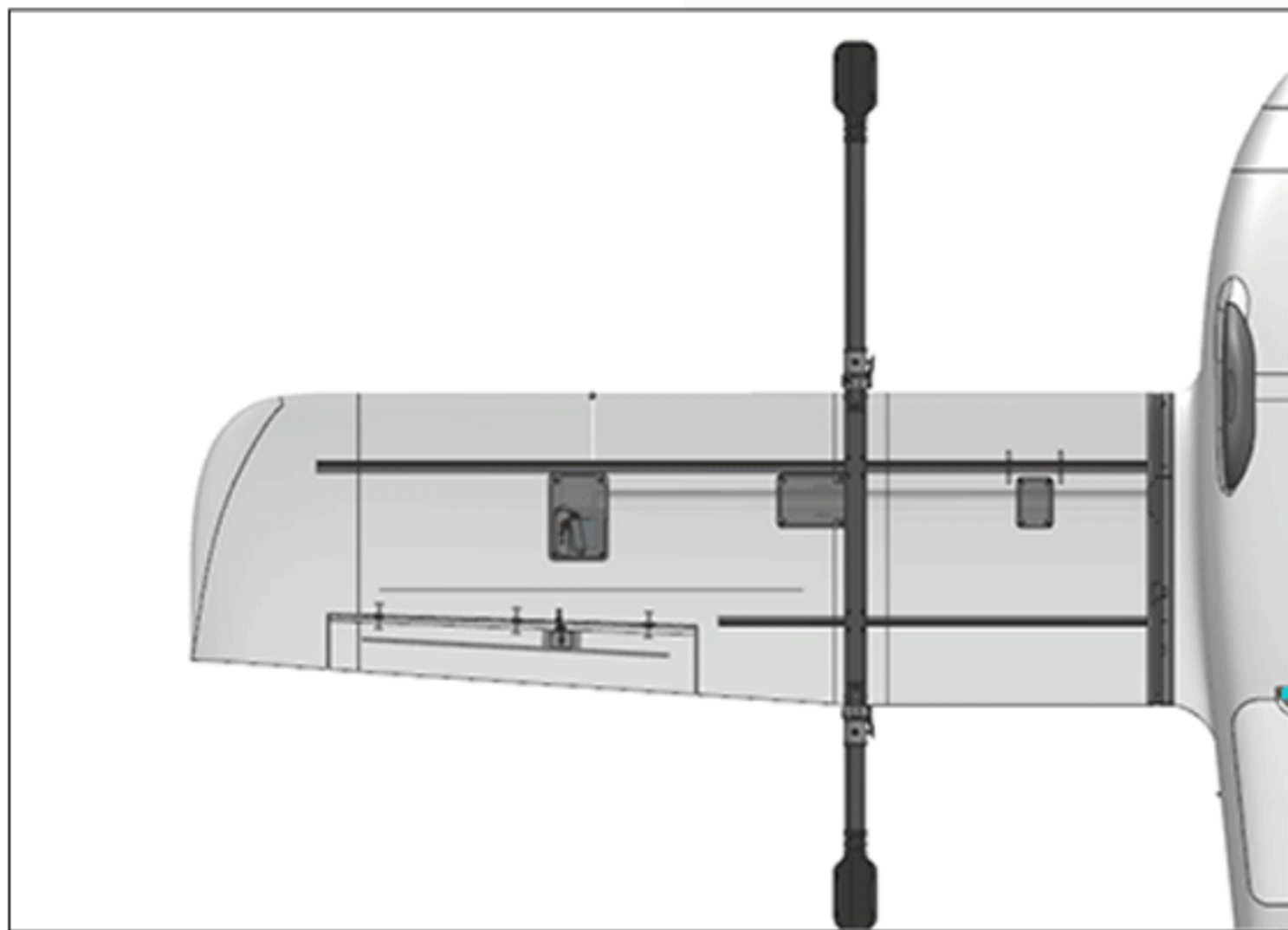


The GPS cabin is located at the rear of the fuselage, the size of 78×58×37 mm can place the GPS and compass module, and the electromagnetic environment is clean.

The position of the PPK antenna is reserved behind the GPS cabin, it is convenient to install PPK antenna to improve the accuracy of POS data.

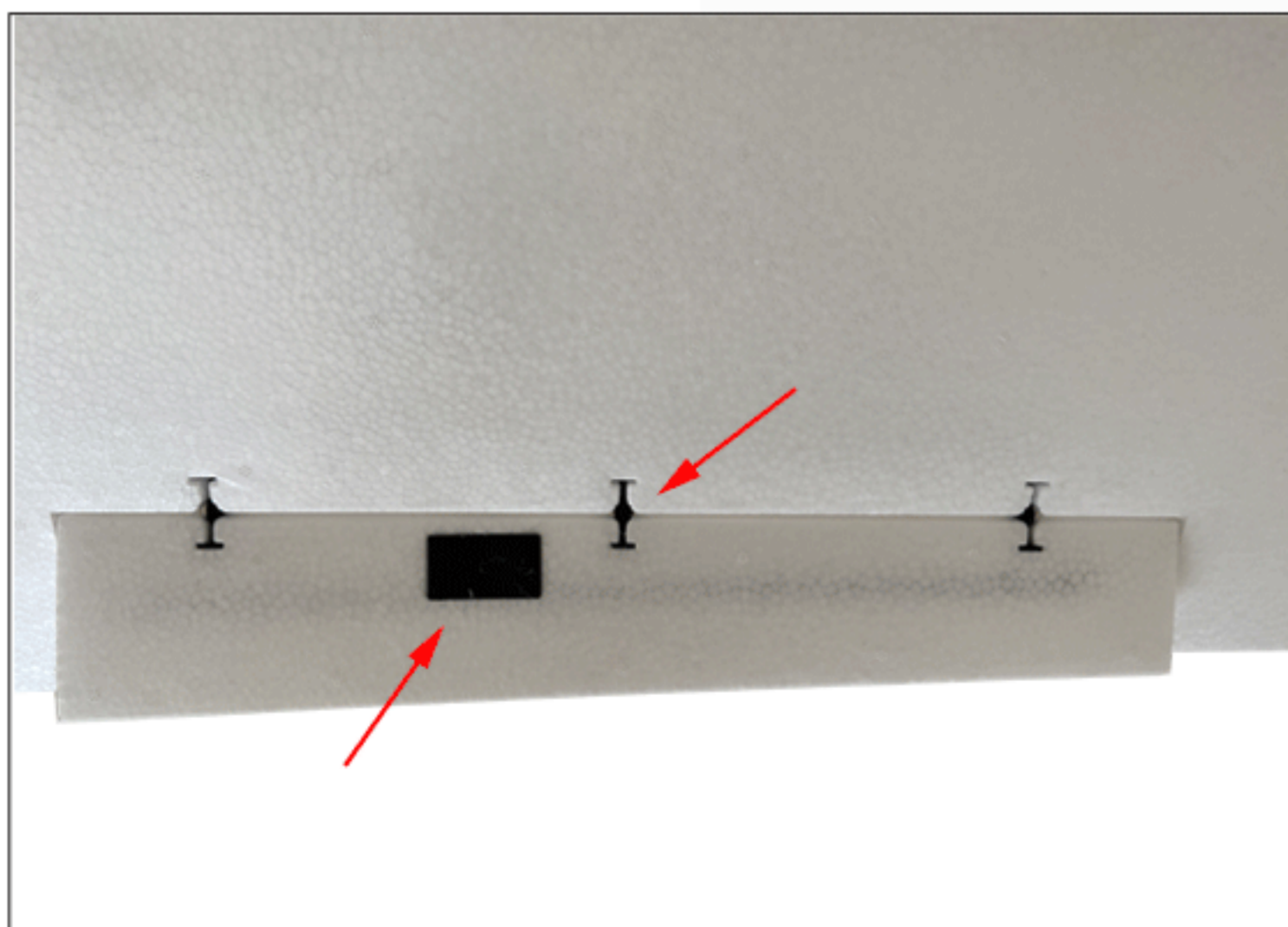


# Wing structure



The wing adopts  $\phi 12 \times 900 \text{mm}$  main carbon tube and  $\phi 10 \times 530 \text{mm}$  secondary carbon tube. Ensure the overall rigidity of the wing.

The wing and fuselage are customized industrial-grade 9+2 high-current connectors, realize the synchronous separation of electrical and structure.



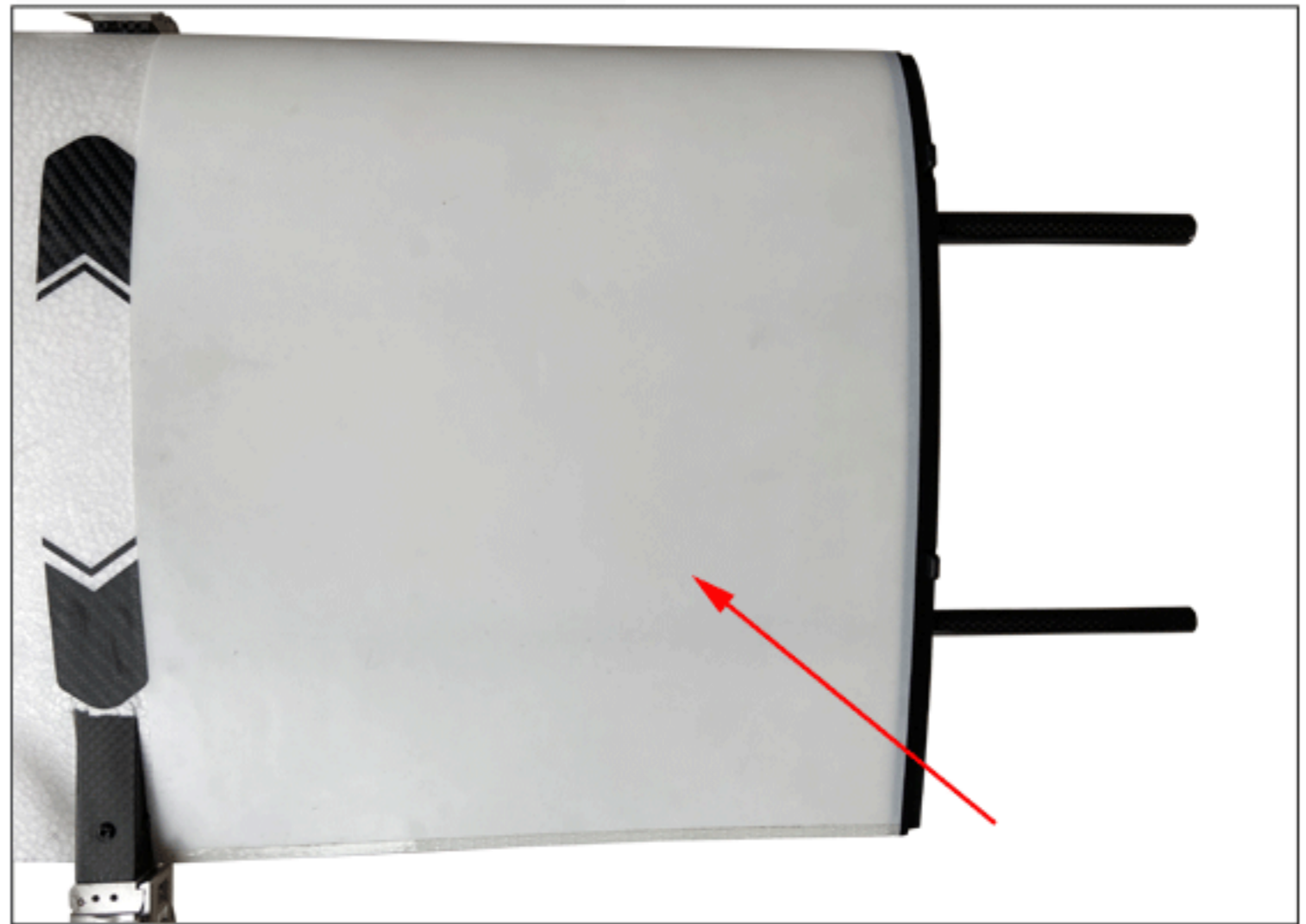
Pre-embedded carbon tubes on the aileron increase the strength of the aileron.

Increase the servo angle fixing plate, and improve the response speed.

The hinge connects the aileron to increase the accuracy and durability of the aileron execution.

## VTOL rotor arm

The multi-rotor part of the wing is reinforced with 3M stickers, which increases the rigidity of the aircraft and improves the torsion resistance of the wing.



The rotor arm can be installed and removed as a whole, which is easy to use and transport.

The mid-end of the arm adopts a 20mm carbon fiber square tube, which fits closely with the main and auxiliary carbon tubes of the wing to ensure rigidity.



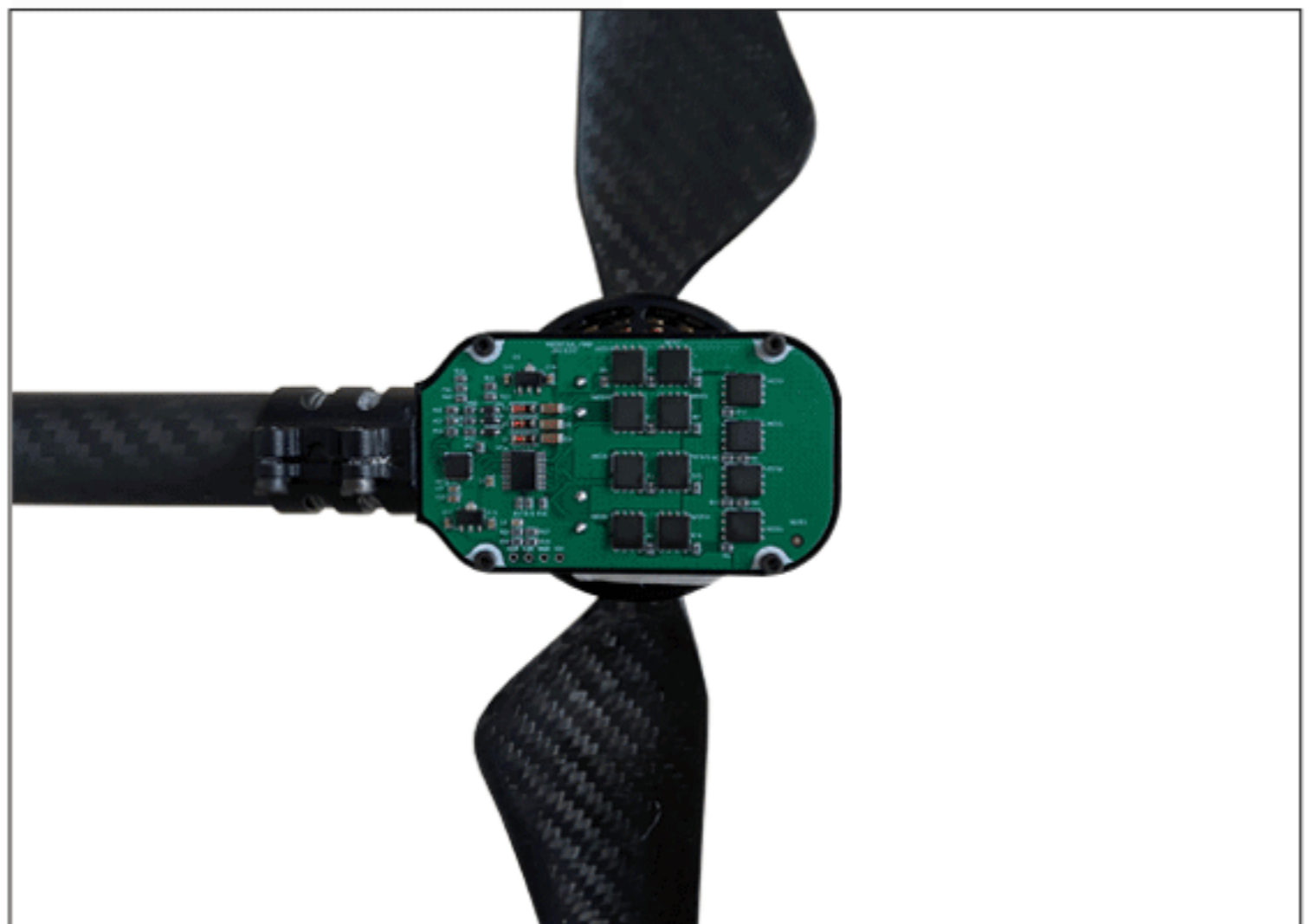
The square tube and the round tube adopt the aluminum alloy self-locking folding structure, which can be folded by one press and self-locked by one turn, which is easy to use.



The multi-rotor motor base is processed by aluminum alloy CNC. The surface adopts anodizing process to increase wear resistance and corrosion resistance.

The motor base supports the largest outer rotor  $\phi 65$  mm motor, the size of the ESC cabin is  $67 \times 31 \times 12$  mm.

**(Optional) Customized ESC, waterproof and dustproof, good heat dissipation effect, no fear of harsh field environment.**



## Wing motor mount compatible with 4+2 mode



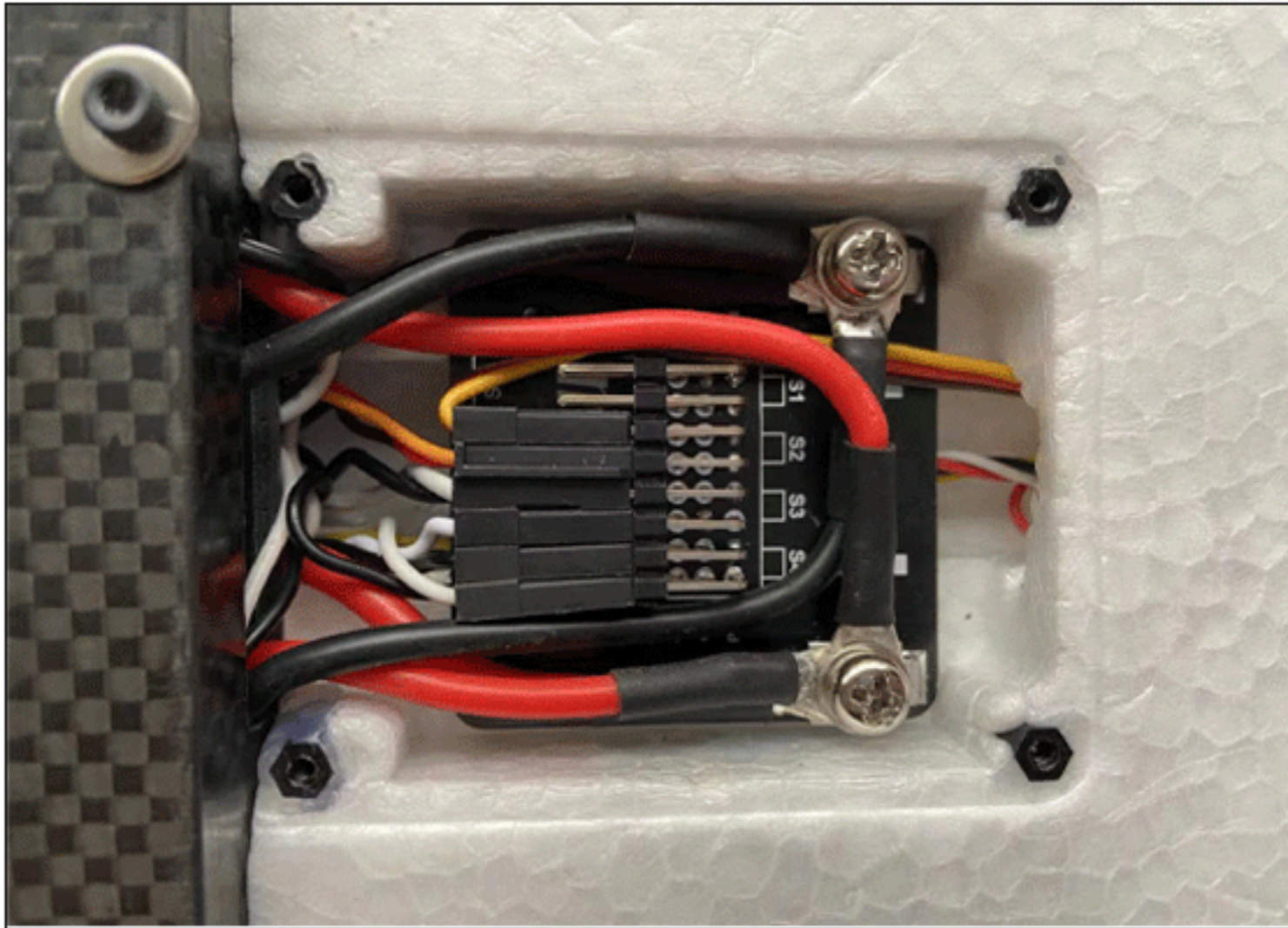
The wing motor base adopts an embedded box structure to connect with the main carbon tube of the wing, which is stable and reliable.

The motor base supports the maximum outer rotor diameter  $\phi 44\text{mm}$  motor (used in 4+2 mode).

Dimensions of the wing ESC cabin:  $80 \times 33 \times 25\text{mm}$ , easy to install ESC, ESC cover adopts hollow grid design, light weight and good heat dissipation.



# Adaptor cabin / aileron servo cabin

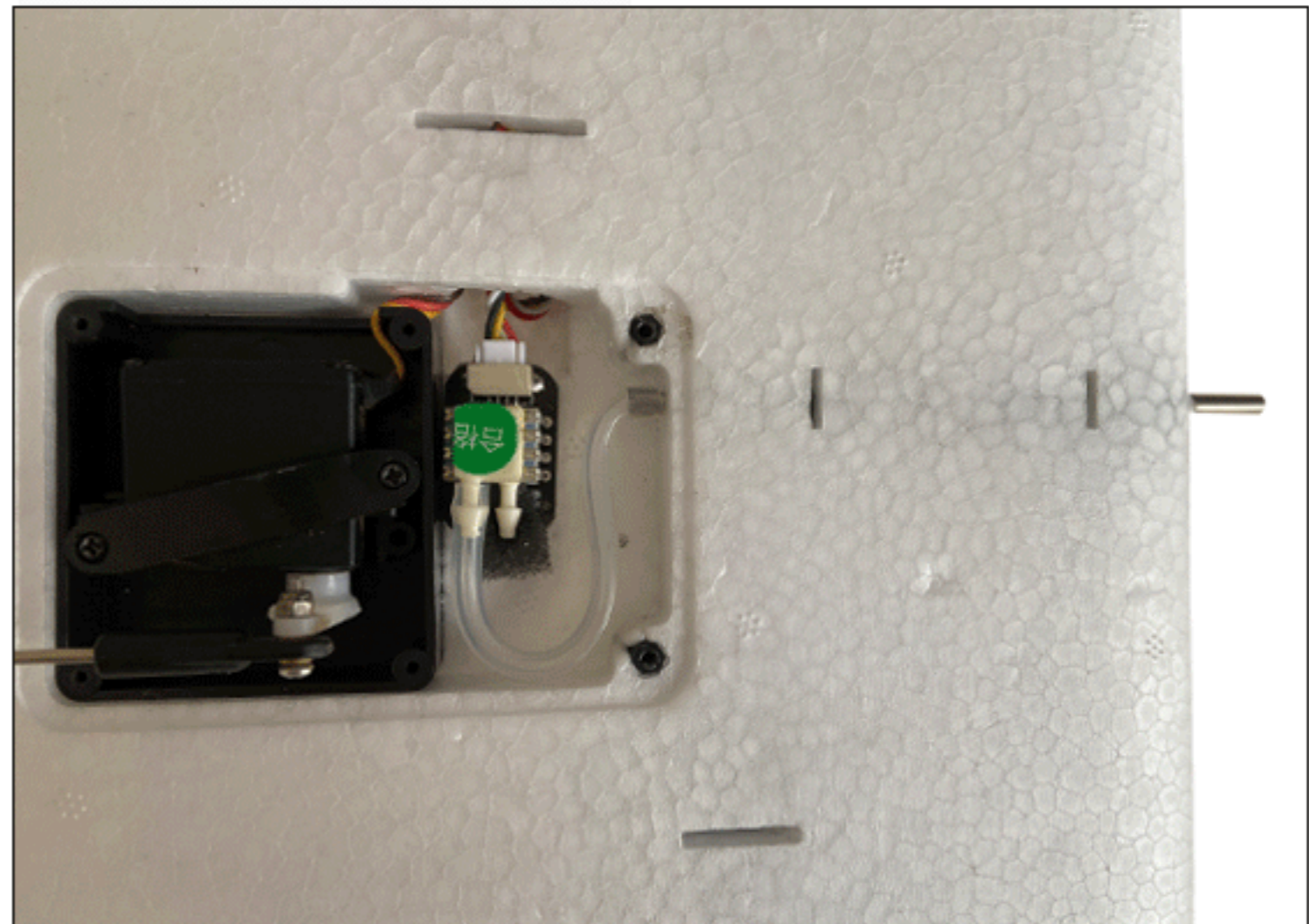


Adaptor cabin is designed in the middle of the wing to facilitate the installation of ESC and servo wires.

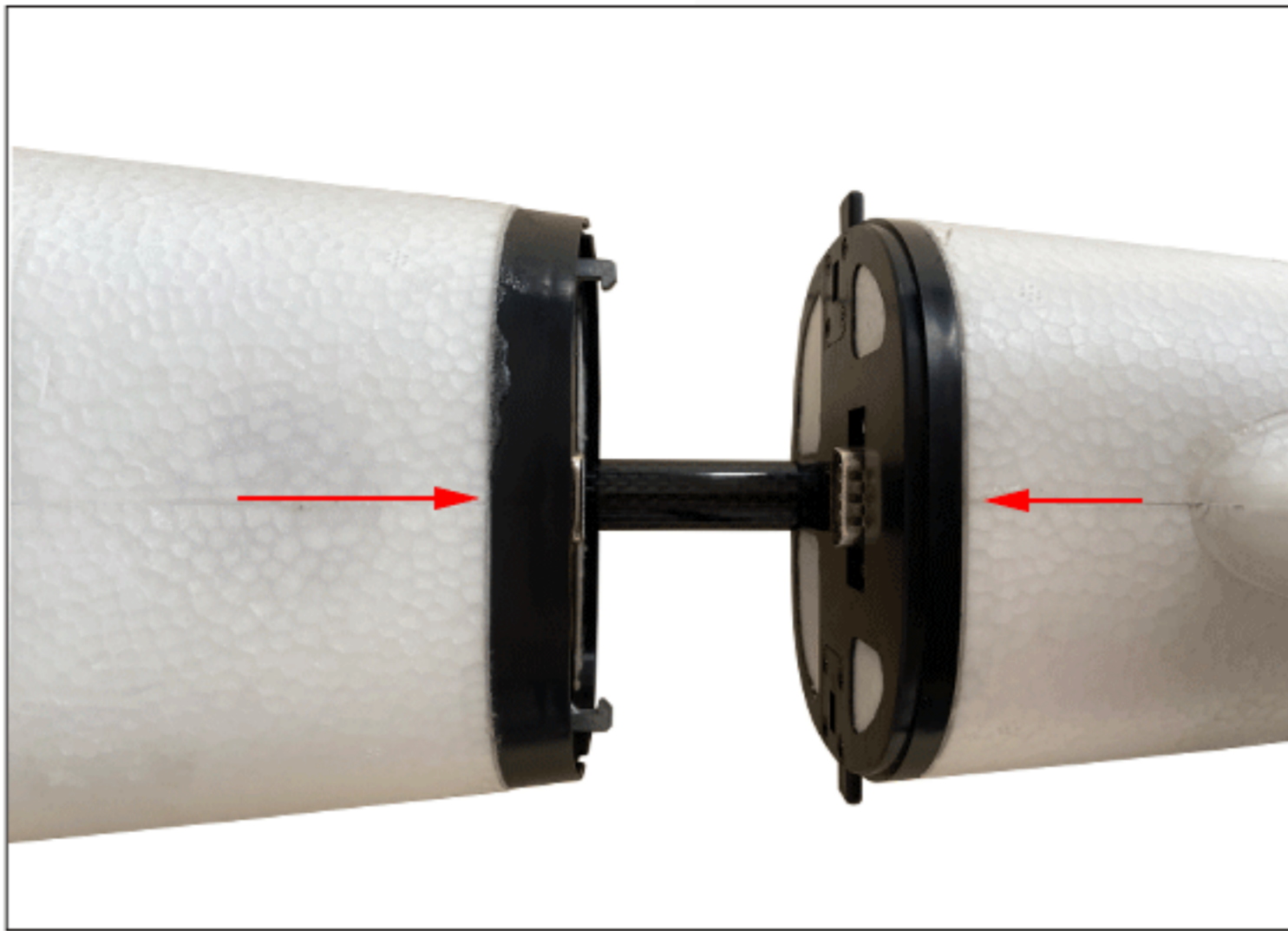
(Optional) Wiring board for quick disassembly and assembly of the wing power system.

The aileron servo cabin is convenient to change the servo, supports the installation of the airspeed meter module, shortens the distance of the dynamic pressure tube, and improves the accuracy of airspeed detection.

(Optional) Left and right dual airspeed meter modules to improve the redundancy of airspeed.

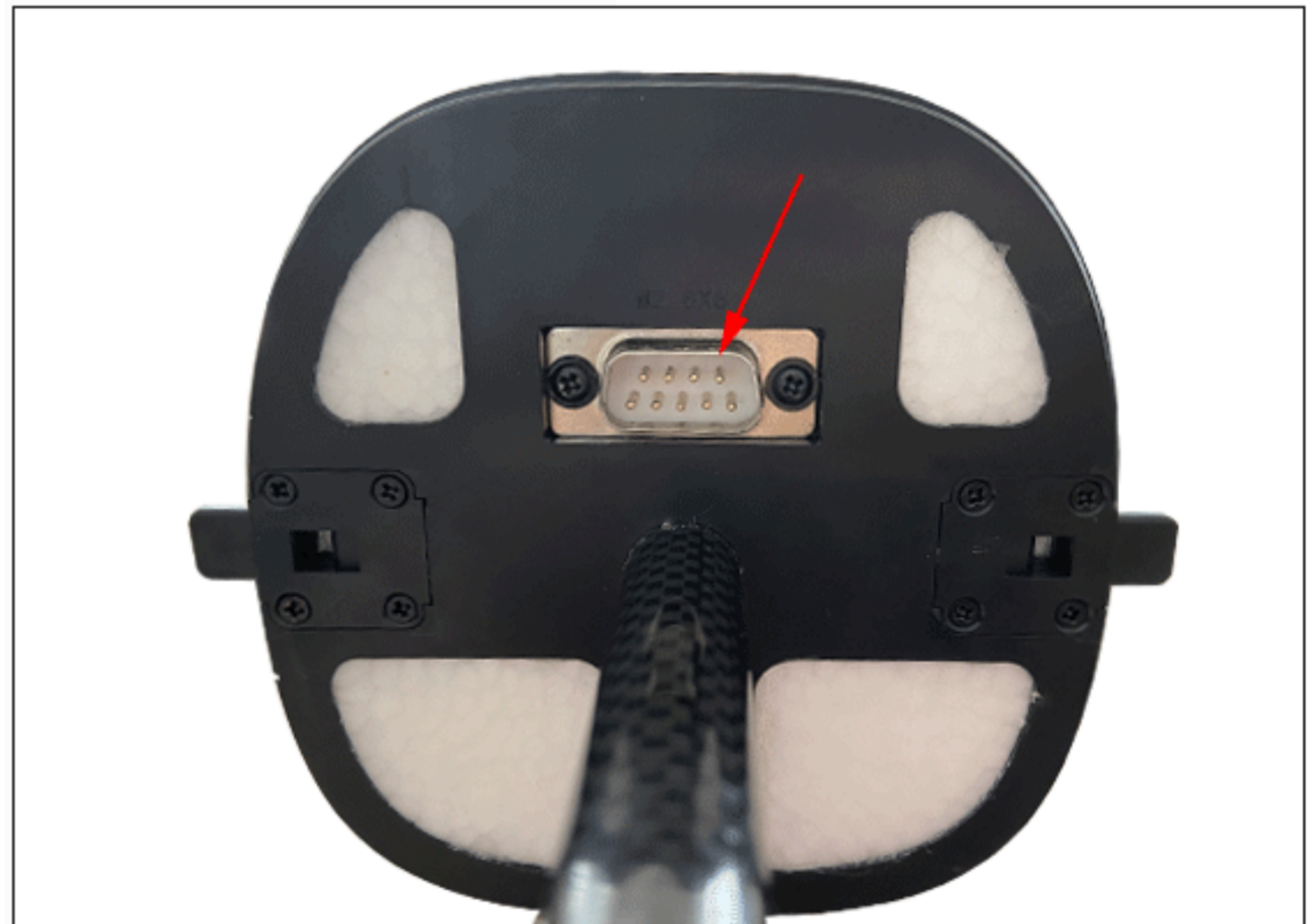


# Vertical Tail

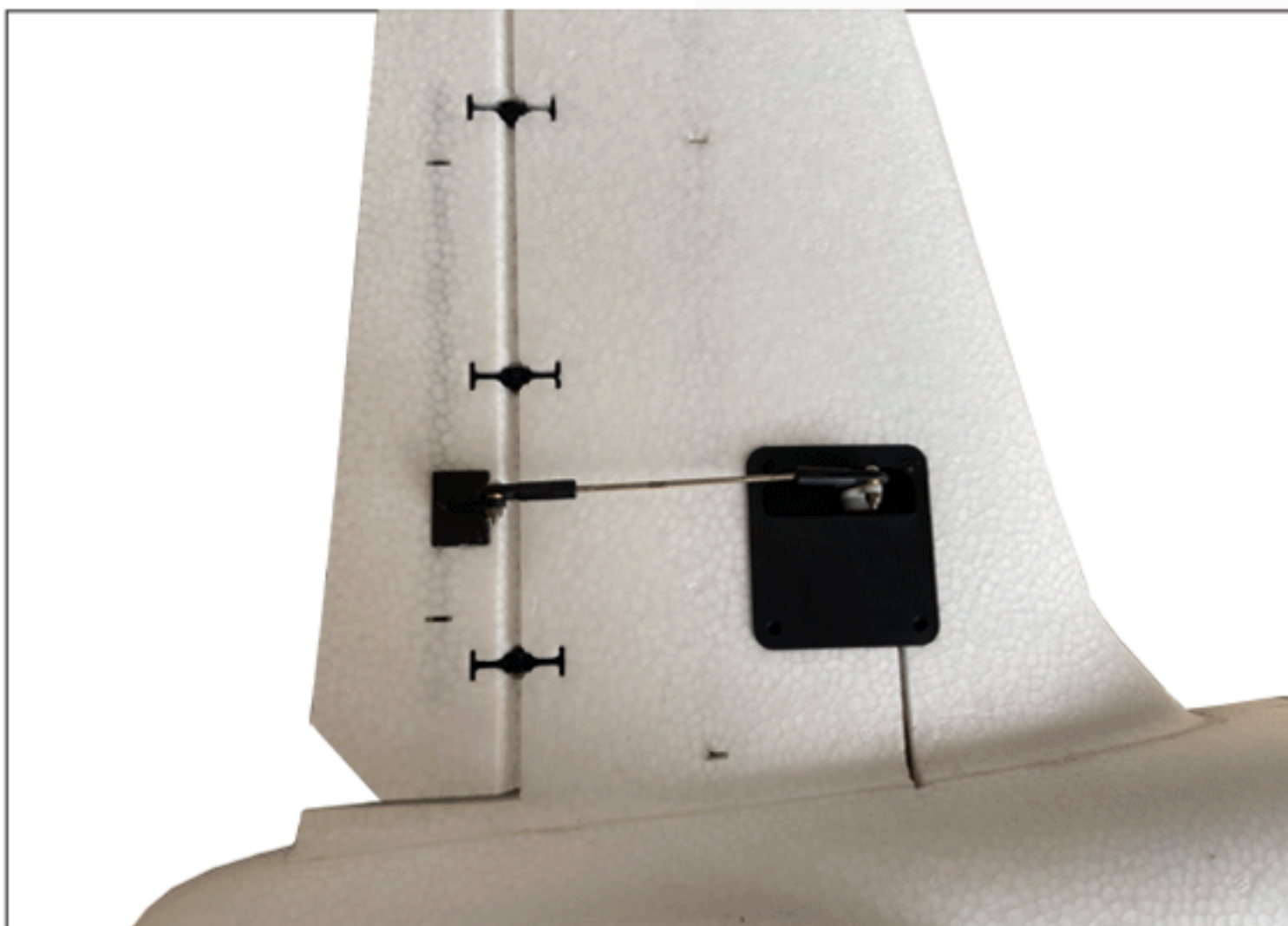


The vertical tail and the fuselage adopt a 5-point integrated toolless quick-release structure.

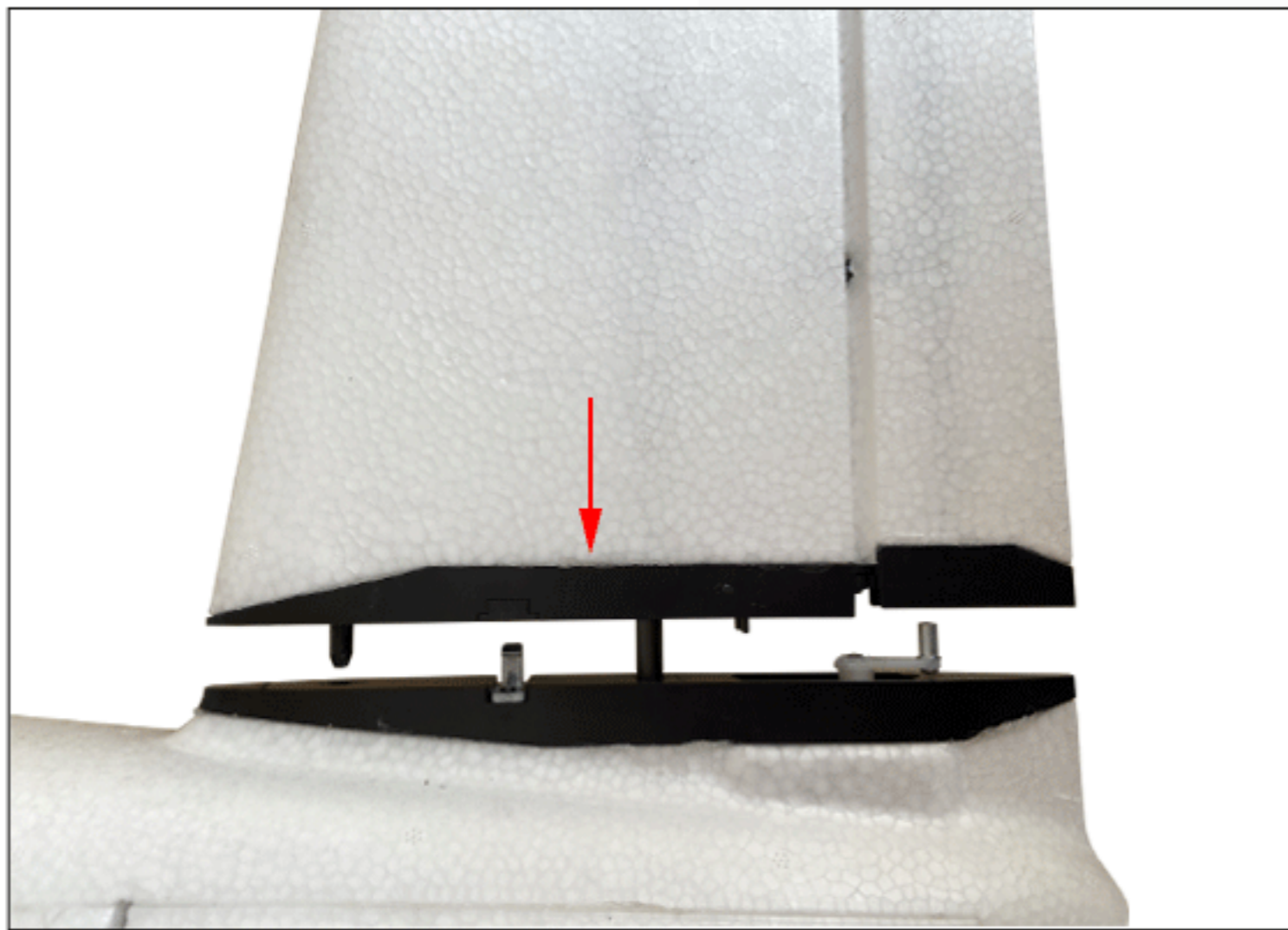
A 9-pin gold-plated connector is used to realize the mechanical and electrical synchronous separation of the tail and the fuselage.



The vertical tail servo can be flexibly disassembled and assembled for easy maintenance and replacement.



# Horizontal Tail



The horizontal tail adopts a tool-less quick-release structure, which is automatically locked with one push and pulled out immediately with one push.

The left and right horizontal tail fins are designed with independent control by dual servos, if either side fails, the aircraft can return home smoothly, which improves the reliability of the aircraft.



The horizontal tail servo does not need to be embedded in advance, which is convenient for the replace of the servo. The servo rocker arm is designed with built-in, even if the rocker drive column is loose, the tail surface can be executed precisely.

# Technical Support

## 技术文档 Docs

### 奋斗者

- 视频-奋斗者航测无人机组装指南
- 视频-奋斗者航测无人机调试指南
- 视频-奋斗者航测无人机测试指南
- 视频-奋斗者航测无人机操作指南
- 视频-奋斗者航测无人机PPK使用指南
- 文档-奋斗者4+1VTOL 奋斗者手抛

### 自由者

- 文档-自由者Freeman2+2频转VTOL

### 信仰者

- 文档-信仰者Believer手抛伞降

### 地面站软件

## 奋斗者

### 视频-奋斗者航测无人机组装指南

- [航测无人机组装指南1-空机机身部分组装](#)
- [航测无人机组装指南2-空机尾翼部分组装](#)
- [航测无人机组装指南3-空机机翼部分组装](#)
- [航测无人机组装指南4-副翼尾翼舵机安装](#)
- [航测无人机组装指南5-机身电源线信号线线材安装](#)
- [航测无人机组装指南6-电机电调安装](#)
- [航测无人机组装指南7-飞控装前准备\(刷固件、参数校准加速度计\)](#)
- [航测无人机组装指南8-飞控GPS罗盘空速的安装及接线注意事项](#)

### 视频-奋斗者航测无人机调试指南

- [航测无人机调试指南1-电压校准快门检查罗盘校准](#)
- [航测无人机调试指南2-遥控器设置地面测试](#)

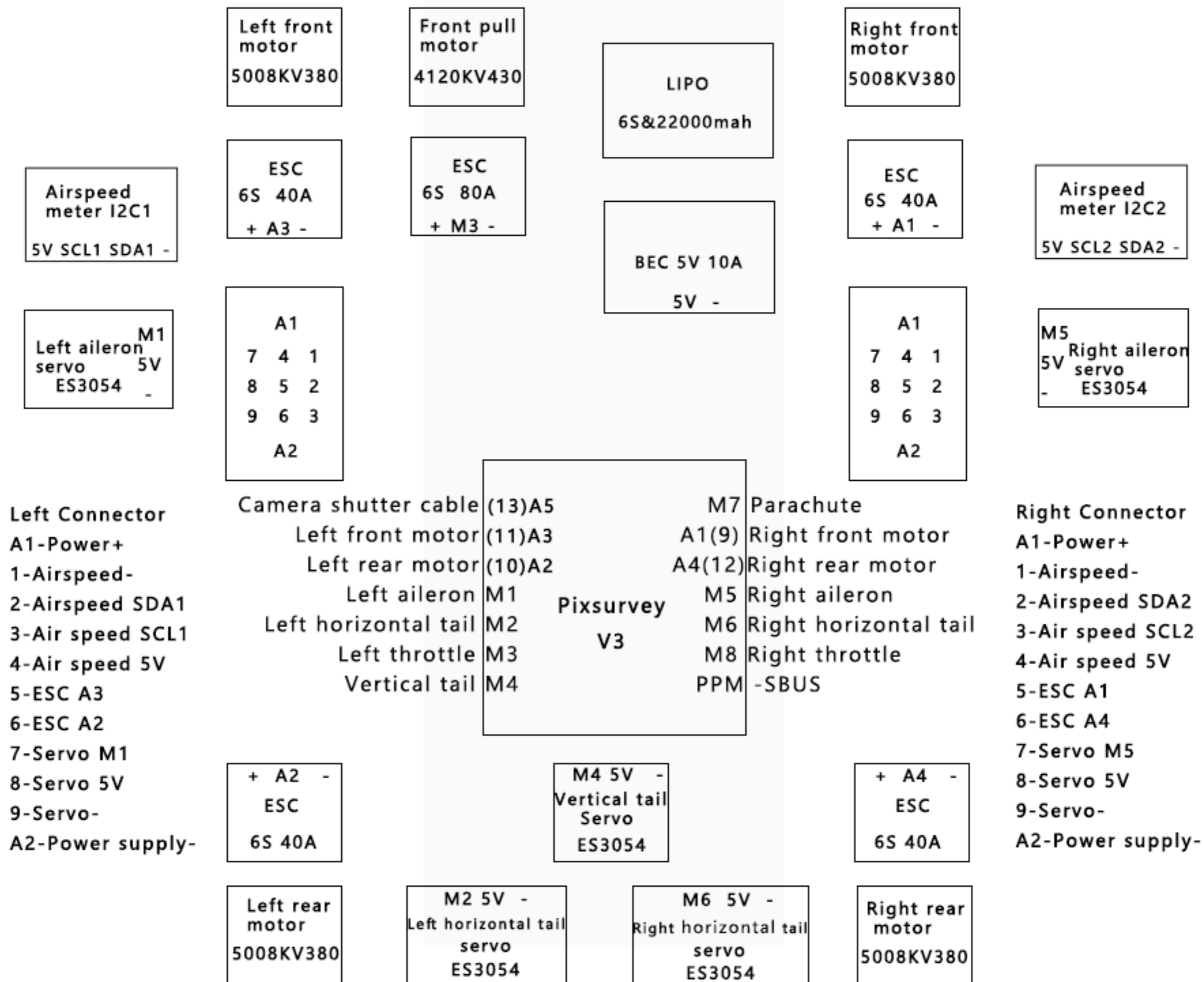
Please read the installation document before installing, most of the information you need is here.

<https://doc.makeflyeasy.com>

Welcome to join the makeflyeasy aerial survey exchange QQ group 293334316, peers and technical support are waiting for you here!



# 4+1 mode wiring diagram



**Note: Please be sure to check the connector line sequence one-to-one correspondence before powering on to prevent short circuit.**

# Configuration List of Spare Parts

## Striver mini VTOL configuration list

Name	Specification	KIT	PNP
Flying platform	Striver left wing	1	1
	Striver right wing	1	1
	Striver rotor arm	2	2
	Striver rotor motor seat	4	4
	Striver fuselage	1	1
	Striver fuselage parts	1	1
	Striver vertical tail	1	1
	Striver horizontal tail	1	1
	Striver parts kit	1	1
	Striver foam packing case	1	1
Power system	Cruise motor 4120 KV 430		1
	Cruise ESC 6S 80A		1
	Cruising propeller APC1612		1
	VTOL motor 5008 KV380		4
	VTOL ESC 6S 40A		4
	VTOL positive and negative propellers 1755		2(pair)
	Emax servo ES3054		5
	6S UBEC 5V10A		1
	Wing terminal		2
	Power cable pack		1



# Disclaimer

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Makeflyeasy aerial survey series products are sensitive items, and the manufacturer does not bear any responsibility for the consequences of direct or indirect derivative accidental injury caused by any reason, and it is forbidden to use in military.

Please keep the aircraft out of the reach of children. Make sure that the aircraft is far away from crowds and dangerous objects when flying. Do not carry out any aircraft operation while drinking, fatigue or mental discomfort

## Specifications

Material	Foam	Origin	Mainland China
Recommend Age	14+y	Use	Vehicles & Remote Control Toys