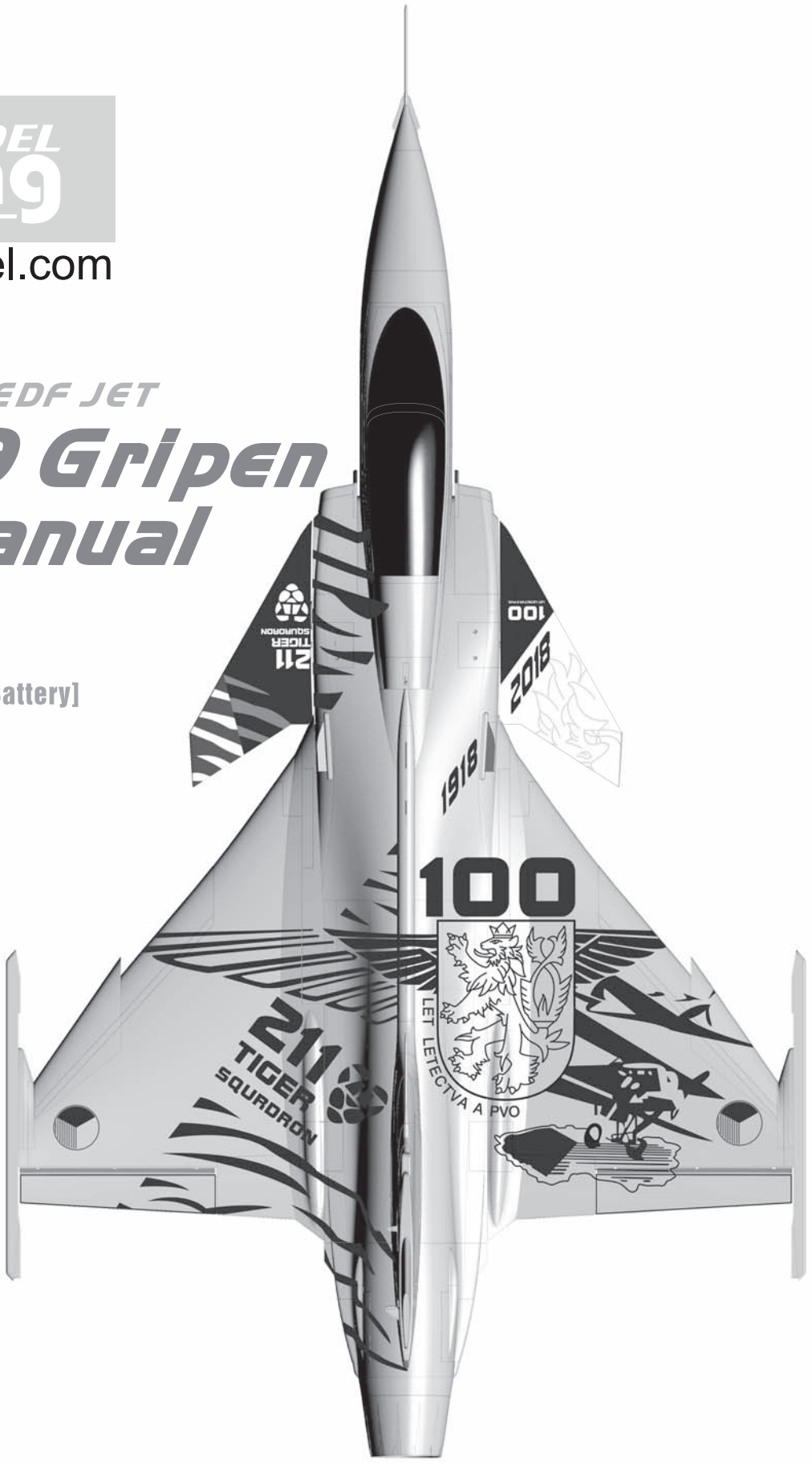
www.freewing-model.com

Freewing 80mm EDF JET

JAS-39 Gripen User Manual

Wingspan:882mm
Length:1613mm
Empty Weight:2350G[w/o Battery]



Freewing Jas-39 Gripen introduction

EN

The JAS 39 Gripen's unique delta wing and canard configuration enables it to achieve a highly maneuverable flight envelope, with a tighter turning radius than the American F-16. Flown by more than a dozen NATO countries, the Gripen is a Mach 2-capable multirole fighter whose 25 year service history continues onward with distinction.

Freewing has raised the bar again for 6S foam electric delta winged jets with the JAS-39 Gripen. This jet is precisely modeled for scale fidelity and practical RC performance, and assembles in minutes including pre-installed electronics and LED lighting. Powered by Freewing's popular 80mm 9-blade Inrunner EDF and a 100A ESC, the Freewing Gripen is designed for power! At 1/9 scale and 1613mm/63 " in length, the Freewing Gripen is longer than its predecessor, the Freewing Typhoon. Referencing the full size Gripen's short take-off capabilities, the Freewing Gripen is optimized for short take-offs and surviving unkempt landing strips.

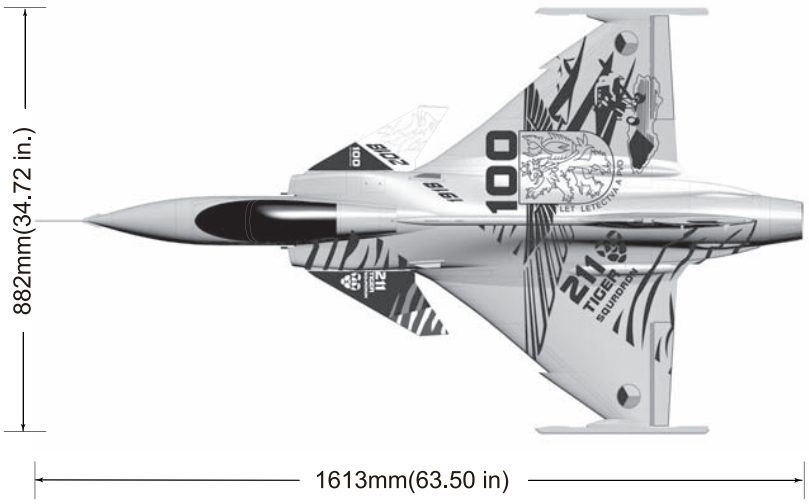
Recommended for intermediate to advanced skill level pilots, the Freewing Gripen offers the power, size and aspect of a 90mm super scale jet, in a lighter, faster, and more economical 80mm EDF Series package. Full-functioning canards enable stable high-alpha capabilities, and full coverage gear doors improve the airframe's overall aerodynamics.

& NOTE: This is not a toy. Not for children under 14 years. Young people under the age of 14 should only be permitted to operate this model under the instruction and supervision of an adult. Please keep these instructions for further reference after completing model assembly.

Note:

1. This is not a toy! Operater should have a certain experience, beginners should operate under the guidance of professional players.
2. Before install, please read through the instructions carefully and operate strictly under instructions.
3. Cause of wrong operation, Freewing and its vendors will not be held responsible for any losses.
4. Model planes' players must be on the age of 14 years old.
5. This plane used the EPO material with surface spray paint, don' t use chemical to clean, otherwise it will damage.
6. You should be careful to avoid flying in areas such as public places, high-voltage-intensive areas, near the highway, near the airport or any other place where laws and regulation clearly prohibit.
7. You cannot fly in bad weather conditions such as thunderstorms, snows ....
8. Model plane's battery, don' t allowed to put in everywhere. Storage must ensure that there is no inflammable and explosive materials in the round of 2M range.
9. Damaged or scrap battery should be properly recycled, it can't discard to avoid spontaneous combustion and fire.
10. In flying field, the waste after flying should be properly handled, it can't be abandoned or burned.
11. In any case, you must ensure that the throttle is in the low position and transmitter switch on, then it can connect the lipo-battery in aircraft.
12. Do not try to take planes by hand when flying or slow landing process. You must wait for landing stop, then carry it.

Product Basic information



Standard Version

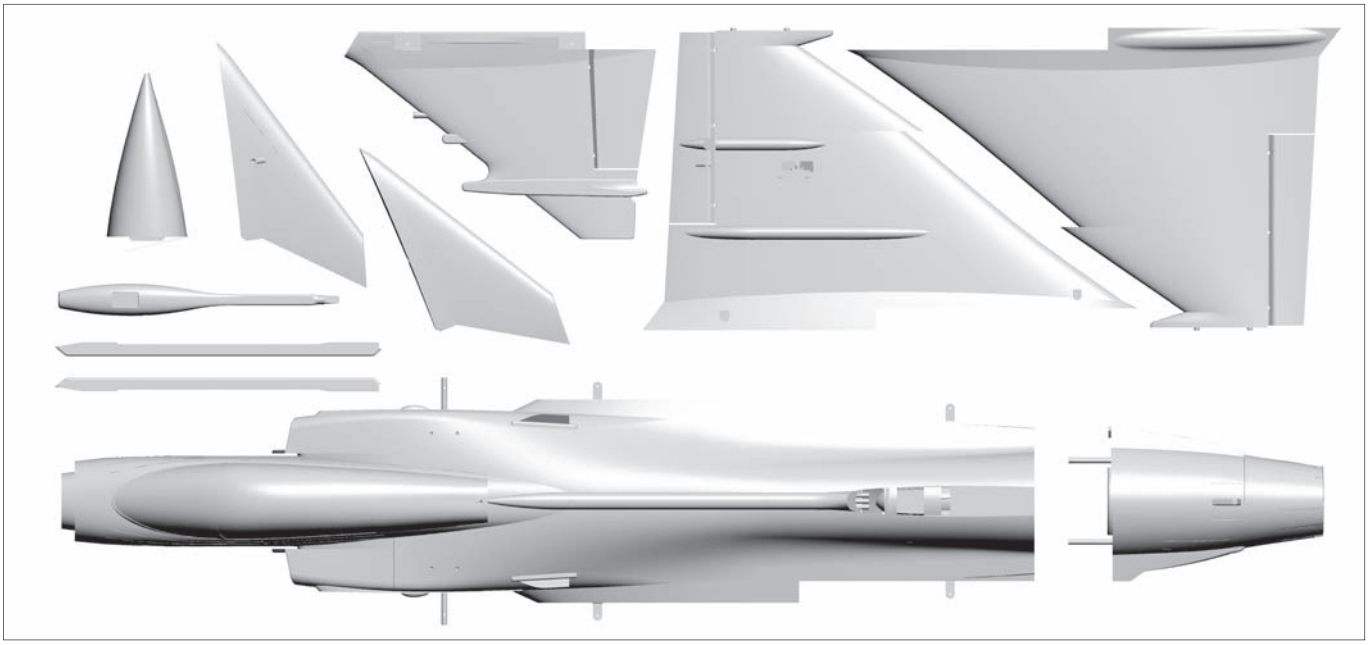
Wingload: 105 g/dm²
Wing Area: 28.6 dm²
Motor: 3658-1920KV I/R Motor
Servo: 9g MG digital servo ×4
9g MG digital servo ×2
ESC: 100A with 5A BEC
Ducted fan: 80mm 9-blade fan
Weight: 2350g (w/o Battery)

Other features

Material: EPO
Aileron: Yes Canard: Yes
Rudder: Yes
Landing gear: Electric Landing Gear
Cabin door:Nose gear cabin door
Scale LED lights
Scale Pilot figure
Li-Po Battery: 6S 4000-5200mAh (1pcs)

⚠ Note: The parameters in here are derived from test result using our accessories. If use other accessories, the test result will be different. Any problem since of using other accessories, we are not able to provide technical support.

Package List

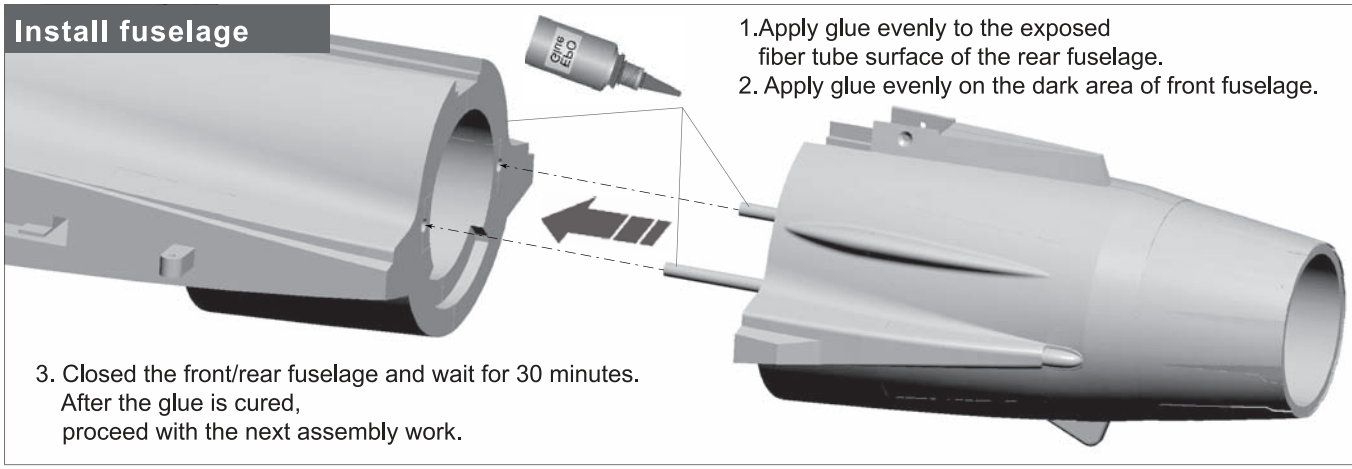


Different equipment include different spareparts. Please refer to the following contents to check your sparepart list.

No.	Name	PNP	ARF Plus
1	Fuselage	Pre-installed all electronic parts	Pre-installed servo
2	Main wing	Pre-installed all electronic parts	Pre-installed servo
3	canard	Pre-installed all electronic parts	Pre-installed servo
4	Vertical tail	Pre-installed all electronic parts	Pre-installed servo
5	Pylons	√	√

No.	Name	PNP	ARF Plus
6	Cockpit and Nose cone	√	√
7	Manual	√	√
8	Pushrod	√	√
9	Non-slipmat	√	√
10	Screw and Carbon tube	√	√

Install fuselage



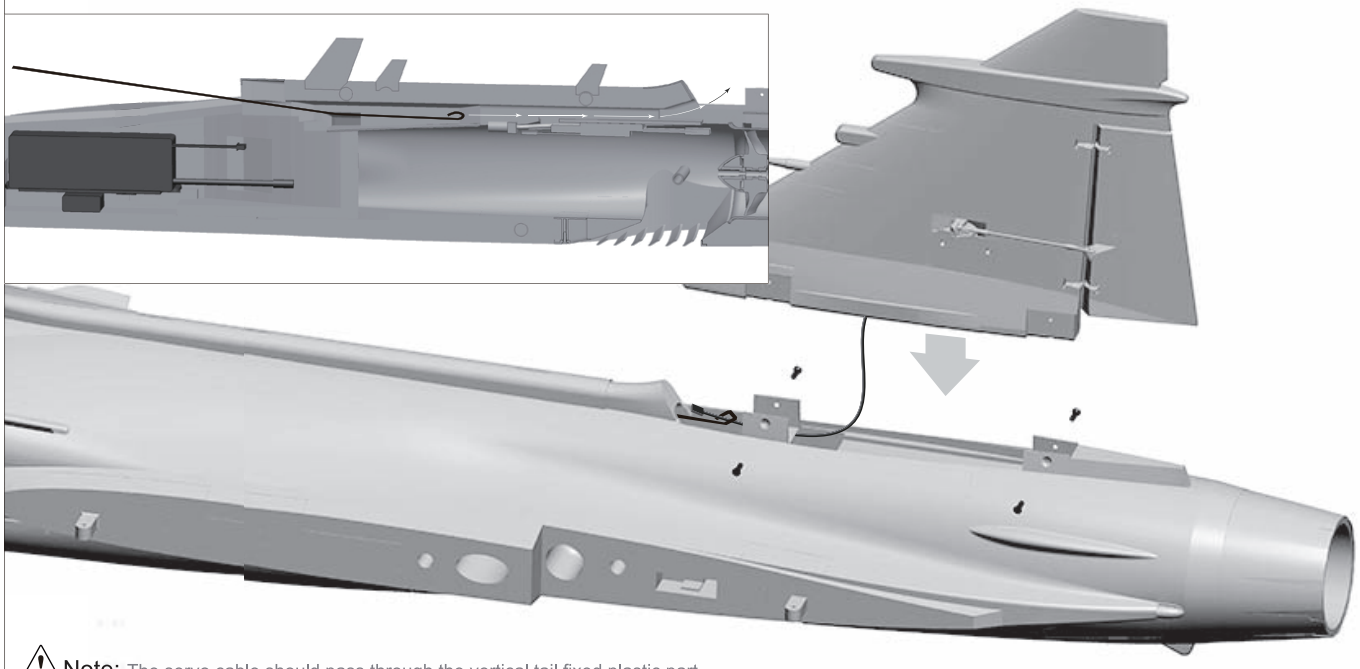
1.Apply glue evenly to the exposed fiber tube surface of the rear fuselage.
2. Apply glue evenly on the dark area of front fuselage.

3. Closed the front/rear fuselage and wait for 30 minutes. After the glue is cured, proceed with the next assembly work.

Install Vertical Stabilizer

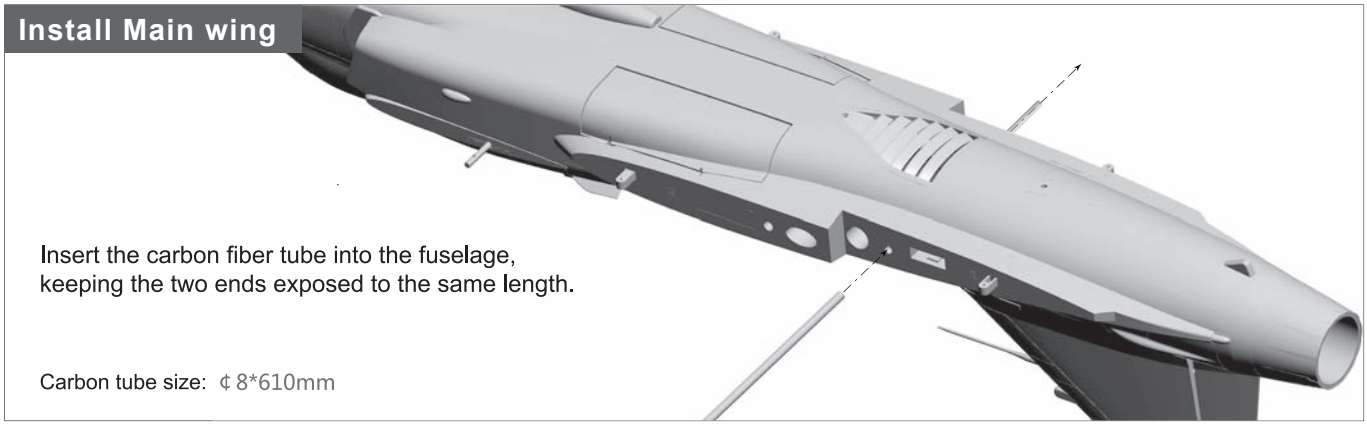
Screw (FA3X10mm 4PCS)

1.Take out the traction wire from the packaging box, and insert the hooked end into the fuselage slot from the battery compartment.
2.Use the traction wire to hook the vertical stabilizer servo wire and pull it into the battery compartment along the wire groove.
3.At the same time, after the vertical stabilizer is installed at the rear of the fuselage, use 4 screws to lock the vertical stabilizer from both sides;



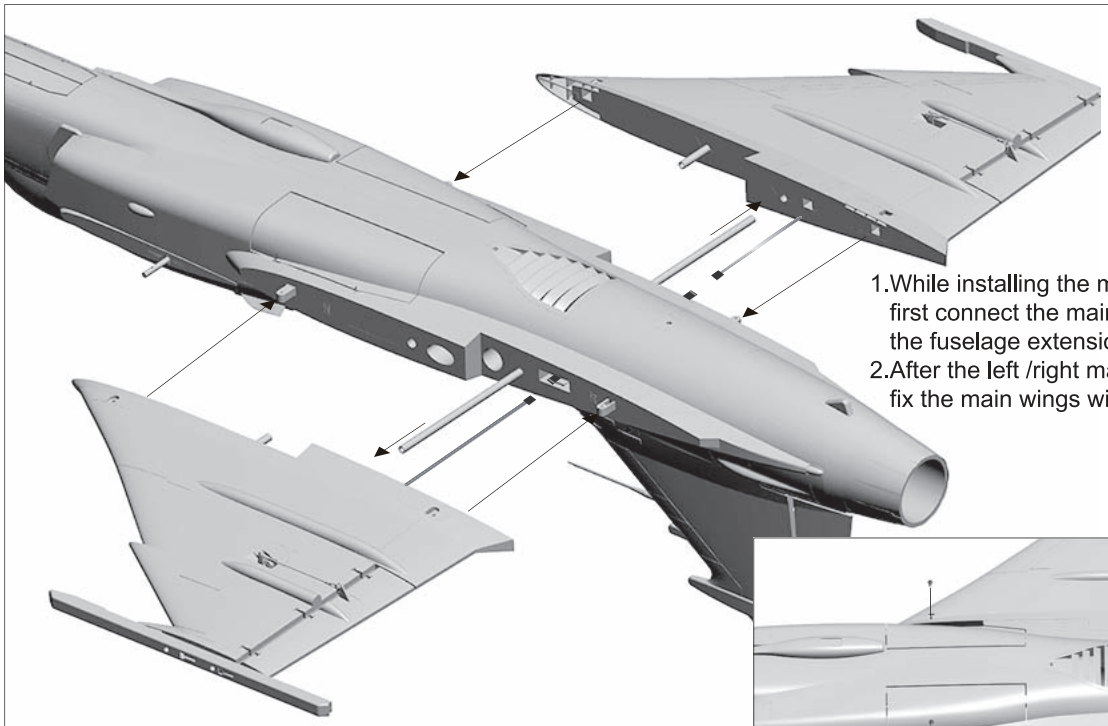
⚠Note: The servo cable should pass through the vertical tail fixed plastic part

Install Main wing

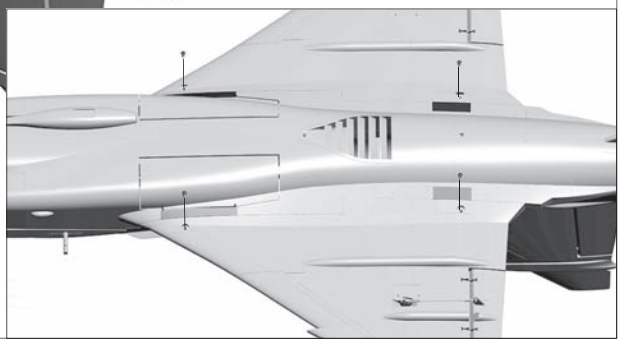


Insert the carbon fiber tube into the fuselage, keeping the two ends exposed to the same length.

Carbon tube size: ¢8*610mm



1.While installing the main wing,
first connect the main wing servo cable and
the fuselage extension line;
2.After the left /right main wings are installed,
fix the main wings with screws.

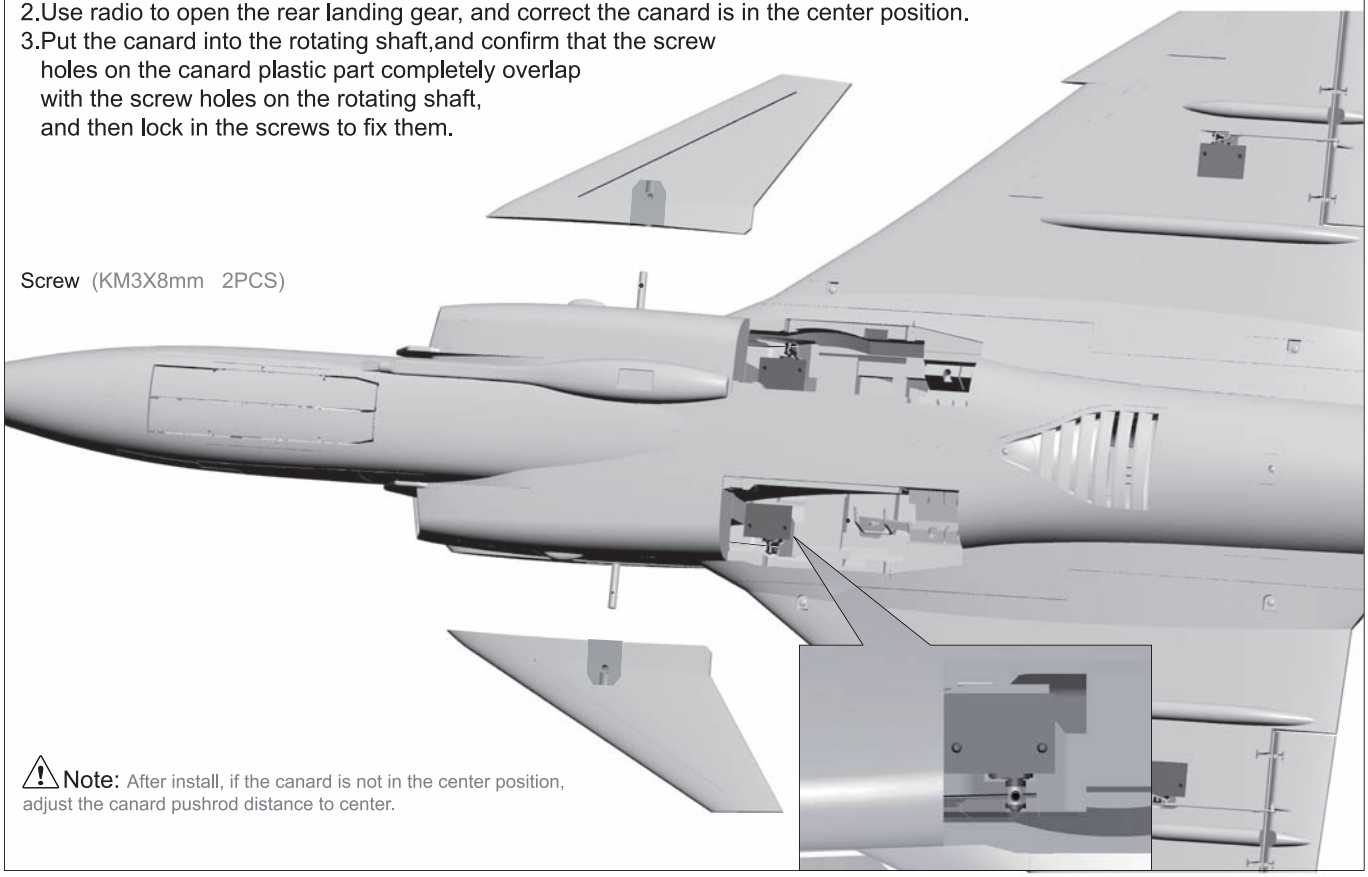


Screw (PWM3X6mm 4PCS)

Install Canard

1.Turn over the fuselage to belly up, then install the canard.
2.Use radio to open the rear landing gear, and correct the canard is in the center position.
3.Put the canard into the rotating shaft,and confirm that the screw
holes on the canard plastic part completely overlap
with the screw holes on the rotating shaft,
and then lock in the screws to fix them.

Screw (KM3X8mm 2PCS)



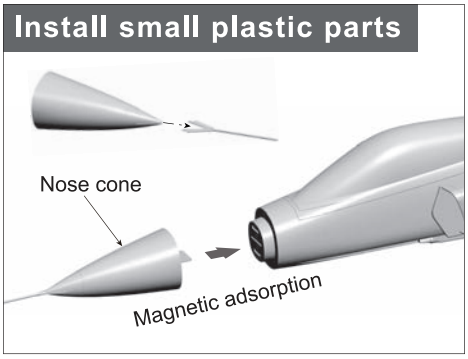
⚠Note: After install, if the canard is not in the center position,
adjust the canard pushrod distance to center.

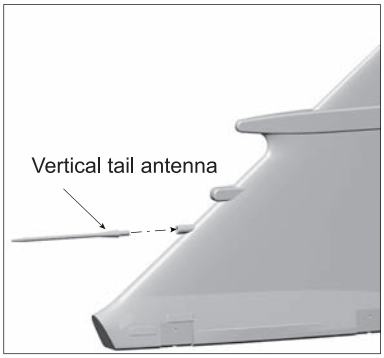
Install Pylons

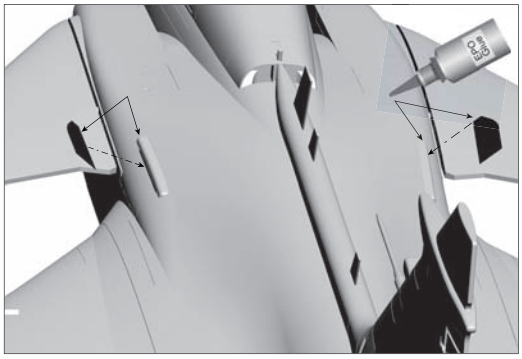
Use 4pcs screws to fix the wingtip tanks.

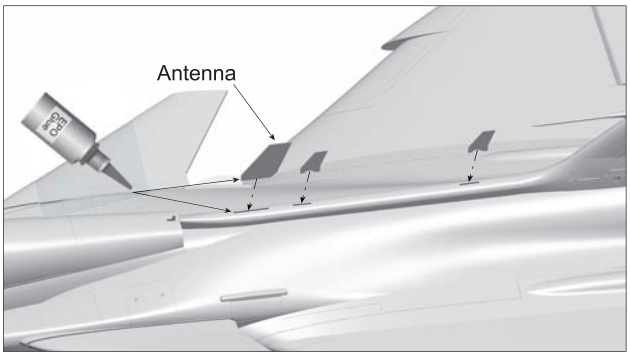
Screw (PA3X10mm 2PCS)

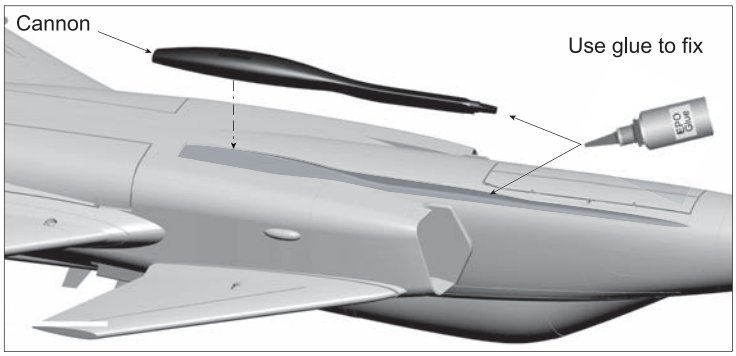
Install small plastic parts



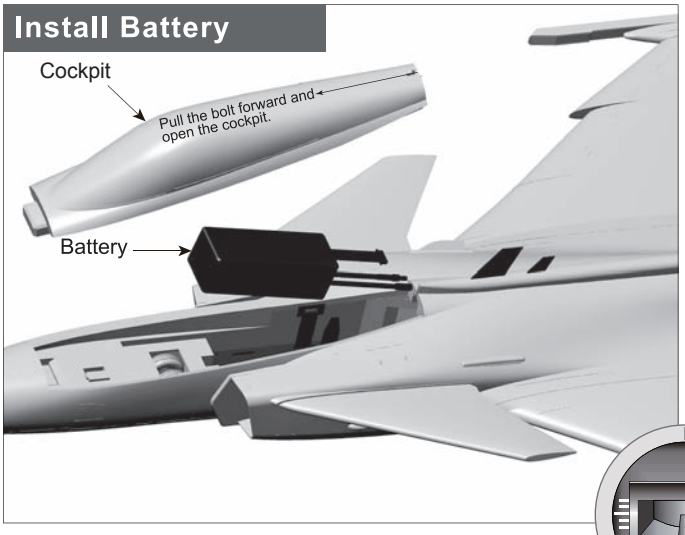


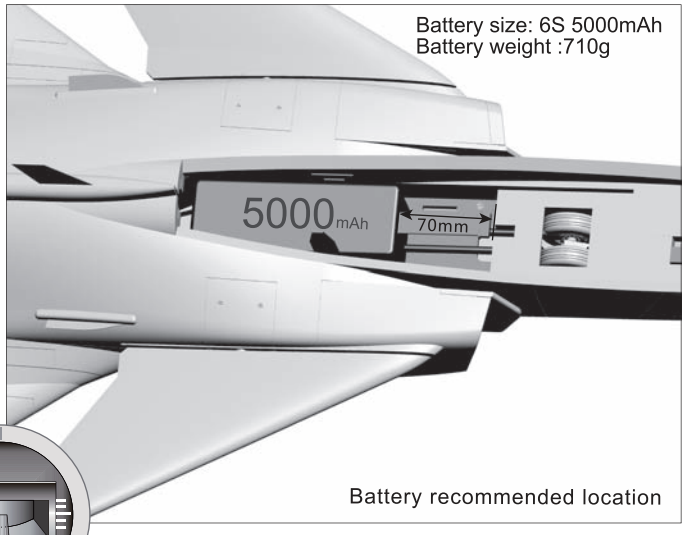


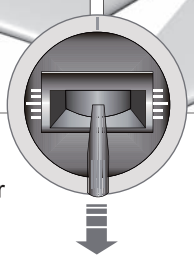




Install Battery





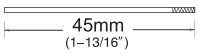


Before connecting the battery and receiver, please switch on the transmitter power and make sure the throttle stick is in the lowest position. Bind your receiver to your transmitter according to your transmitter's instruction manual.

We recommend the following LiPo battery:
6S 22.2V 4000mAh~6S 22.2V 5000mAh
Discharge rate of C ≥ **35C**

Pushrod instructions

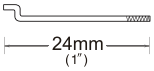
Nose gear steering pushrod length



Pushrod diameter Ø1.2mm

Nose gear steering pushrod mounting hole

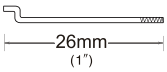
Nose cabin door pushrod length



Pushrod diameter Ø1.2mm

Nose cabin door pushrod mounting hole

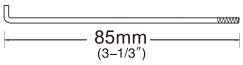
Rear cabin door pushrod length



Pushrod diameter Ø1.2mm

Rear cabin door pushrod mounting hole

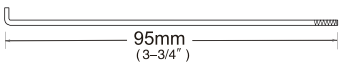
Rudder pushrod length



Pushrod diameter Ø1.5mm

Rudder pushrod mounting hole

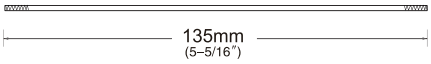
Aileron pushrod length



Pushrod diameter Ø1.5mm

Aileron pushrod mounting hole

Canard pushrod length



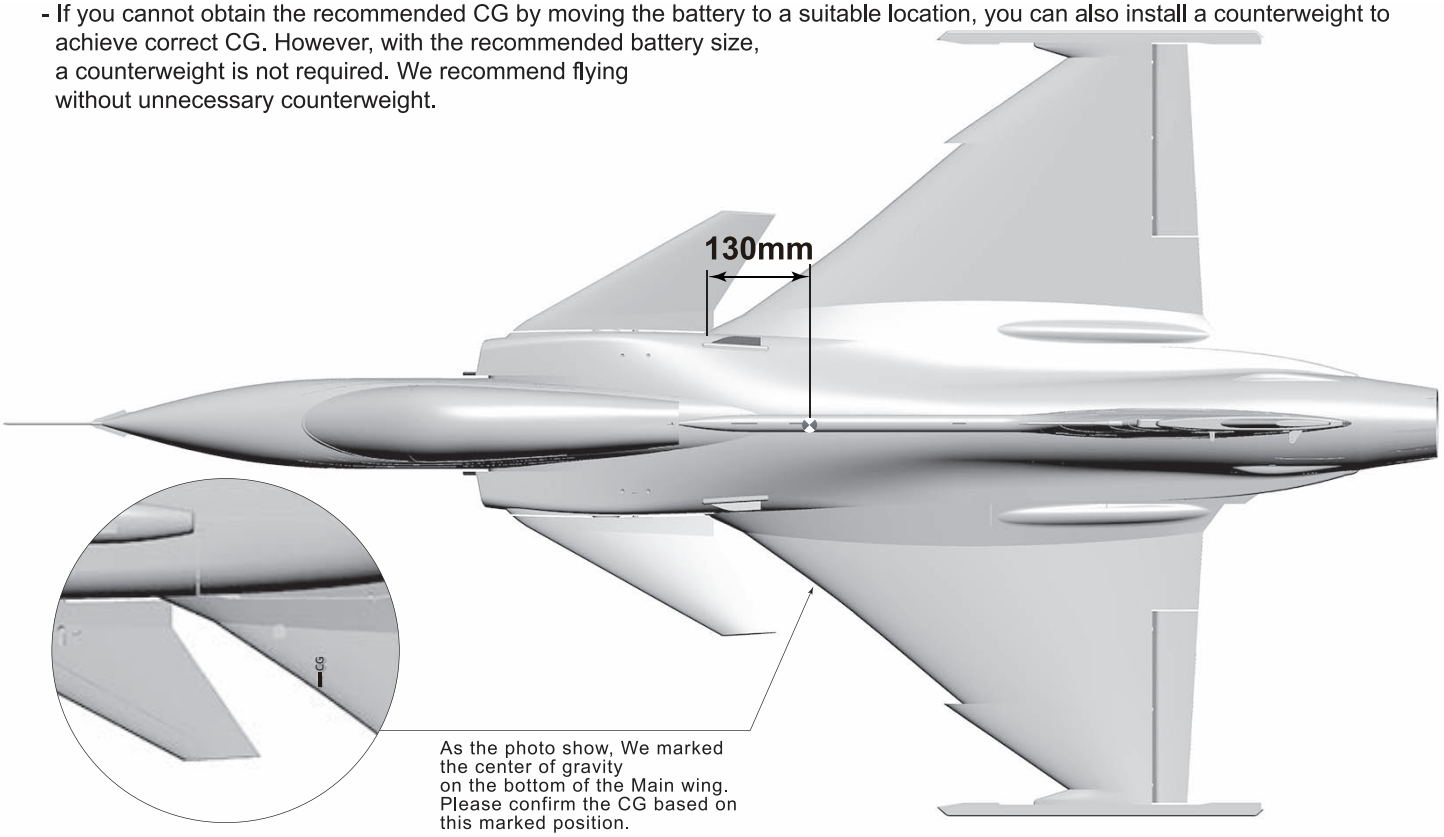
Pushrod diameter Ø1.5mm

Canard pushrod mounting hole

Center of Gravity

Correct Center of Gravity ("CG") is critical for enabling safe aircraft stability and responsive control. Please refer to the following CG diagram to adjust your aircraft's Center of Gravity.

- Depending on the capacity and weight of your choosen flight batteries, move the battery forward or backward to adjust the Center of Gravity.
- If you cannot obtain the recommended CG by moving the battery to a suitable location, you can also install a counterweight to achieve correct CG. However, with the recommended battery size, a counterweight is not required. We recommend flying without unnecessary counterweight.



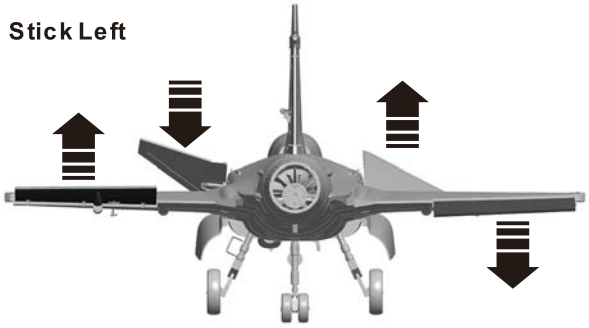
As the photo show, We marked the center of gravity on the bottom of the Main wing. Please confirm the CG based on this marked position.

Control Direction Test

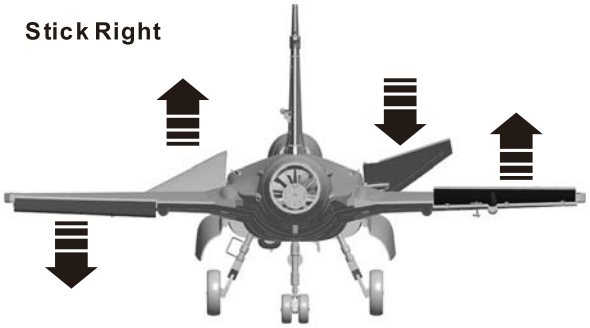
After installed the plane, before flying, we need a fully charged battery and connect to the ESC, then use radio to test and check that every control surface work properly.

Aileron

Stick Left



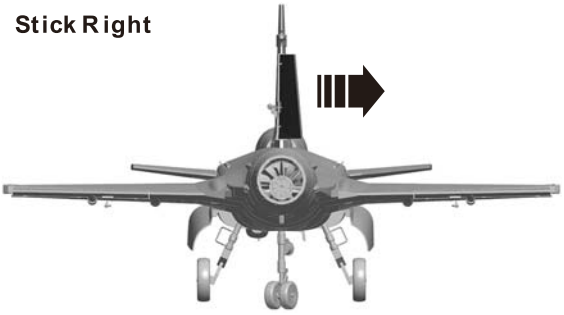
Stick Right



Rudder

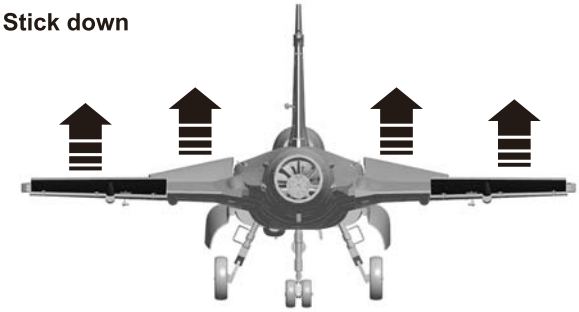
Stick Left

Stick Right

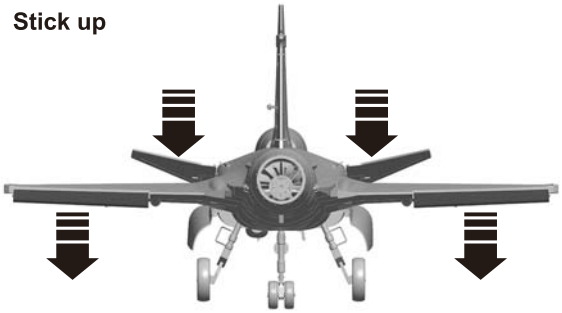


Elevator

Stick down

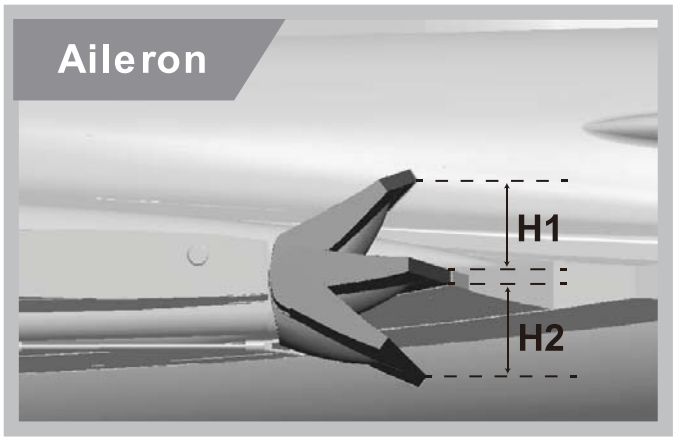


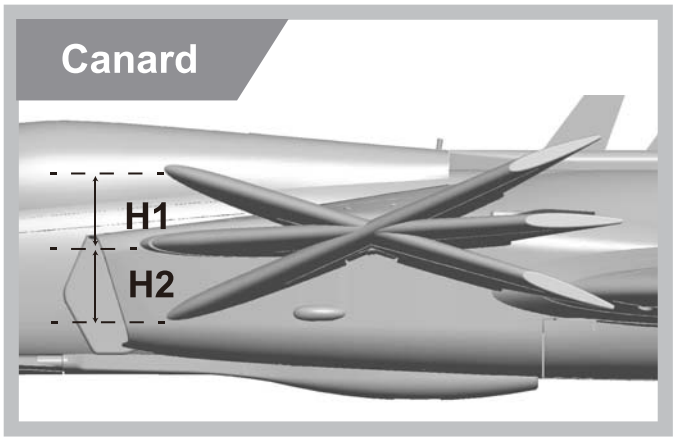
Stick up

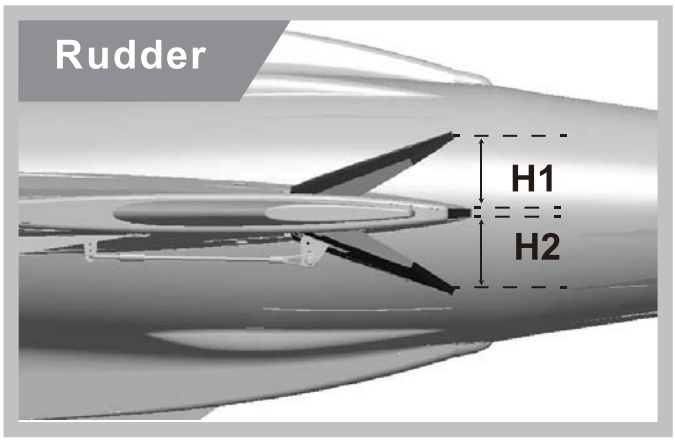


Dual Rates

According to our testing experience, use the following parameters to set Aileron/Elevator Rate. Program your preferred Exponential % in your radio transmitter. We recommend using High Rate for the first flight, and switching to Low Rate if you desire a lower sensitivity. On successive flights, adjust the Rates and Expo to suit your preference.



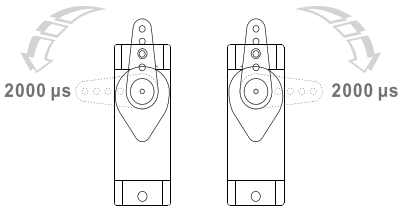




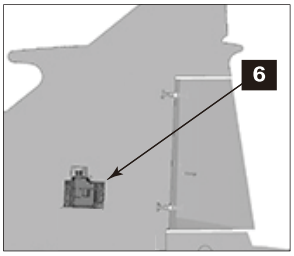
	Canard (Canard wing tip)	Aileron (Measured closest to the fuselage)	Rudder (Measured from the bottom)
Low Rate	H1/H2 27mm/27mm D/R Rate : 70%	H1/H2 17mm/17mm D/R Rate : 70%	H1/H2 27mm/27mm D/R Rate : 80%
High Rate	H1/H2 35mm/35mm D/R Rate : 100%	H1/H2 23mm/23mm D/R Rate : 100%	H1/H2 32mm/32mm D/R Rate : 100%

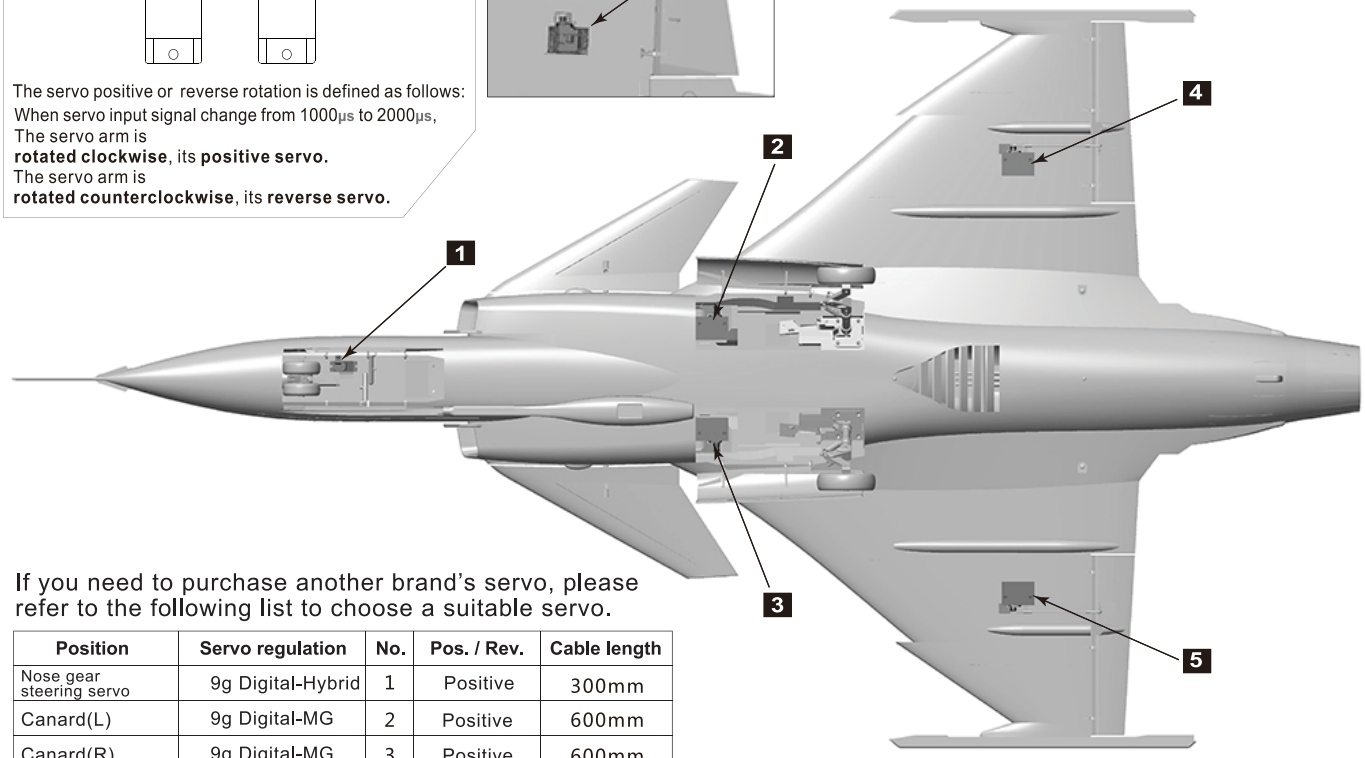
Pre-Installed Component Overview

Servo Direction



The servo positive or reverse rotation is defined as follows:
When servo input signal change from 1000μs to 2000μs,
The servo arm is
rotated clockwise, its **positive servo.**
The servo arm is
rotated counterclockwise, its **reverse servo.**



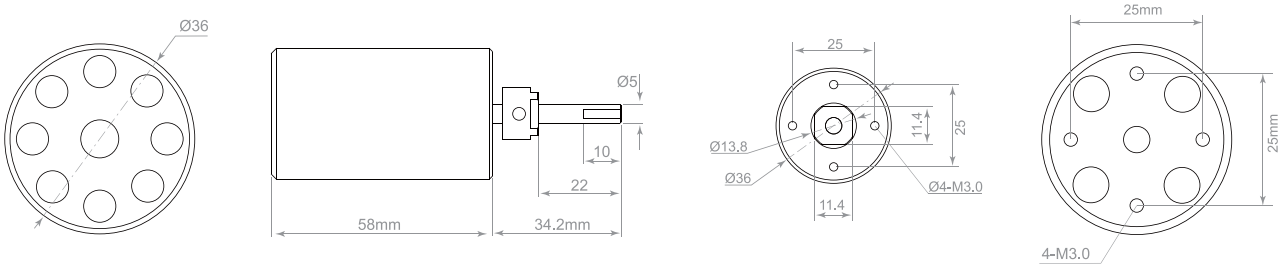


If you need to purchase another brand's servo, please refer to the following list to choose a suitable servo.

Position	Servo regulation	No.	Pos. / Rev.	Cable length
Nose gear steering servo	9g Digital-Hybrid	1	Positive	300mm
Canard(L)	9g Digital-MG	2	Positive	600mm
Canard(R)	9g Digital-MG	3	Positive	600mm
Aileron(L)	9g Digital-Hybrid	4	Positive	200mm
Aileron(R)	9g Digital-Hybrid	5	Positive	200mm
Rudder	9g Digital-Hybrid	6	Positive	1050mm

Motor Specification

#MOI36584
3658-1920KV



Unit:mm

Item No.	Fan size	Motor specifications	Voltage (V)	Current (A)	Max power (W)	Thrust (g)	Efficiency (g/w)	Speed (rpm)	Weight (g)
E72313	80mm 9-Blade	3658-1920KV	22.2	90	2000	3400	1.7	42000	345

前　言

感谢您购买飞翼模型80mm JAS-39”鹰狮”仿真模型飞机。JAS-39战斗机由瑞典萨博公司（SAAB）研制，首飞于1988年，之后向全世界推销，已服役于瑞典、捷克、匈牙利等国。是一款集战斗、攻击、侦察兼具的多功能战斗机。

飞翼模型80mm JAS-39模型，轮廓精准，外形逼真。机长1613mm，翼展882mm，采用EPO材料制作，内嵌碳纤材料加固。各主要部件,均采用螺丝固定的快装结构。在维护和升级方面，提供了便利性。

JAS-39模型飞机，机轮直径约45mm/70mm，前、后起落架使用铝合金制作符合，配合M型（5KG）和L型（13KG）电动涡杆控制器，降落时减震效果明显，适应草地起降。此模型搭载80mm-9叶内转动力组，配备100A无刷电调。起飞滑跑过程中，不易偏航，充沛的动力，有效减小了起飞距离（起飞距离：20~25M）。飞行过程中，动作响应迅速，回馈精准，最大飞行时速达到170KM/H，最高飞行时长约4分钟。这款JAS-39模型，在鸭翼的作用下，低速大仰角时，机体姿态更加稳定，操控性更高，给我们的飞行过程，带来更多精彩的玩法。

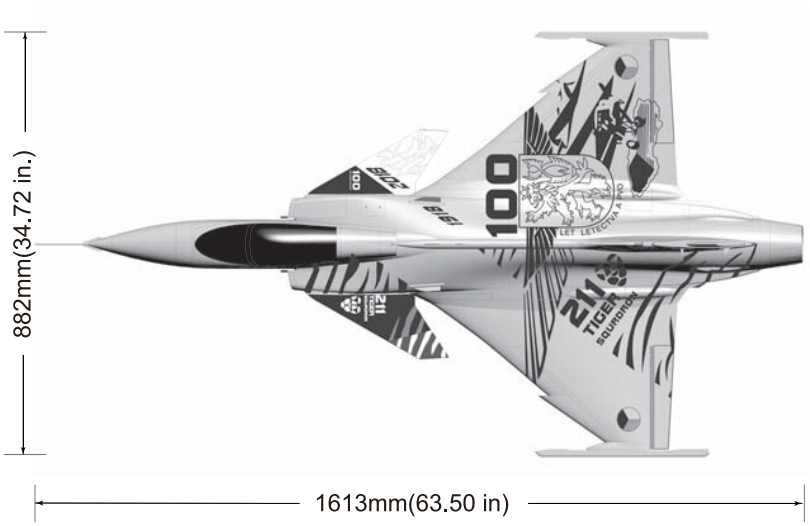
飞翼模型JAS-39模型飞机，选用了捷克空军100周年纪念涂装，使用多块大面积的水贴纸制作完成。此涂装不仅有一定纪念意义，同时在空中有良好的视觉效果，希望您喜欢！

重要提示

1.模型飞机不是玩具,操作者需要具备一定的经验;没有经验的初学者,必须在有丰富经验的专业人士指引下,逐步学习!
2.在组装之前,必须认真阅读产品说明书,严格按照说明书指示操作。
3.飞翼模型及其销售商，对于违反说明书的要求操作而造成的损失、将不负任何法律责任！
4.模型飞机的使用年龄必须是14岁以上的儿童或者成人。
5.此模型产品使用EPO材料制成，表面喷涂油漆，不可随意使用化学制剂擦拭，否则会损坏模型产品。
6.不可以在公共场合、高压线密集区、高速公路附近、机场附近或者其它法律法规明确禁止飞行的场合飞行。
7.不可以在雷雨、大风、大雪或者其它恶劣气象环境下飞行。
8.模型飞机的电池产品，不可以随意乱扔，乱放。存放时,必须保证周边2M范围内,无易燃、易爆物体。
9.损坏或者报废处理的模型飞机电池，应妥善回收处理，不准随意抛弃，避免自燃而引发火灾。
10.在飞场飞行时，应做到妥善处理飞行后所产生的垃圾，不可随意抛弃、焚毁模型及其配件。
11.在任何情况下,都必须保证油门杆处于起始位、发射机处于打开状态时，才能连接模型飞机内部的动力电池.
12.无论是模型飞机是在正常飞行过程中,或者是在缓慢降落过程中,都不要尝试用手去回收模型。必须等模型降落停稳以后 ，再进行回收！

⚠ **注意：**模型产品是具一定危险性的产品，请禁止14岁以下的儿童玩耍，14 岁以上的儿童，请在有飞行经验的成人指导下使用，无飞行经验的购买者，应当在具有一定电动涵道飞机飞行经验的成人指导下使用！ 组装模型前，请仔细阅读说明书，按照说明书的要求进行安装. 进行调试和飞行时，请根据说明书指示的参数进行调整。

产品基本参数



标准版

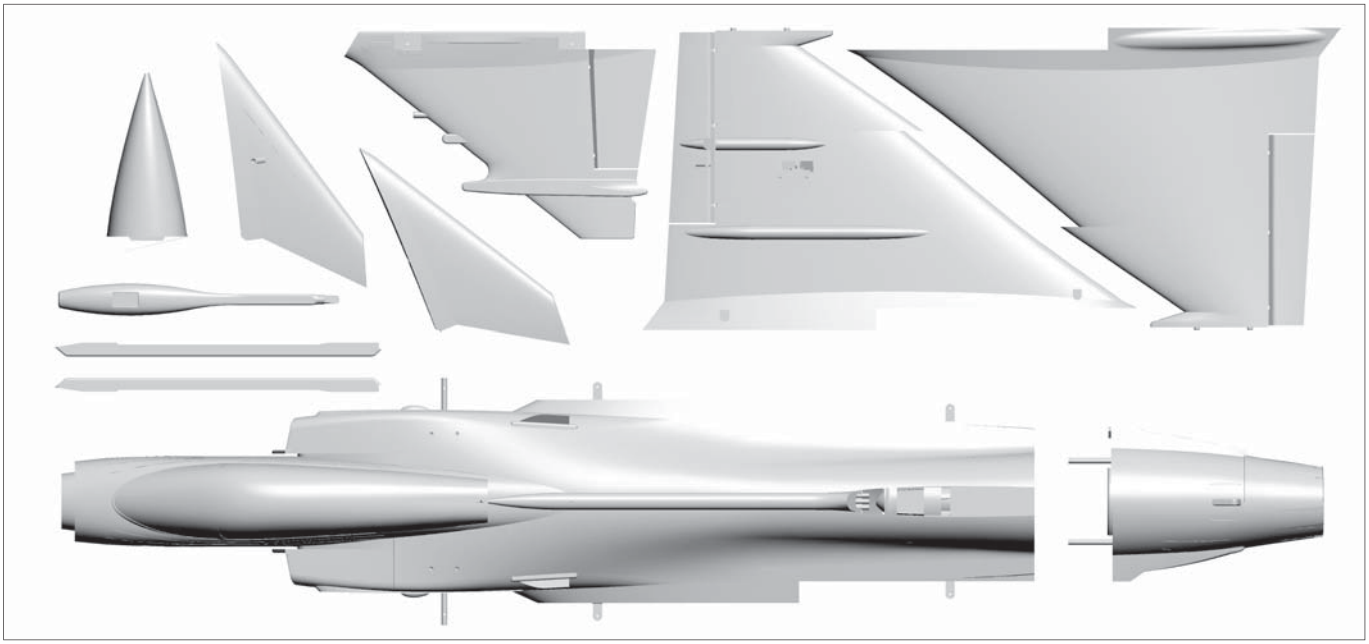
翼载荷：105 g/dm²
翼面积：28.6 dm²
舵机：9g数字混合齿×4
　　9g数字金属齿 ×2
电机：3658-1920KV内转电机
涵道风扇：80mm 9叶塑料涵道
电调：100A无刷电调 BEC 5A
起飞重量：2350g(不含电池)

其它说明

机体材料：EPO，ABS工程塑料
副　翼：有　　鸭翼：有
方向舵：有
起落架：电动金属减震起落架
舱门：前-全舱门、后-全舱门
飞行员：仿真飞行员 ×1
电池范围：6S 4000-5200mAh

⚠ **注意：**此处各项参数，均使用本公司配件测试得出，如果使用副厂配件，会有所差异。使用副厂配件时所产生的问题，我们将无法给予技术支持!

产品包装清单

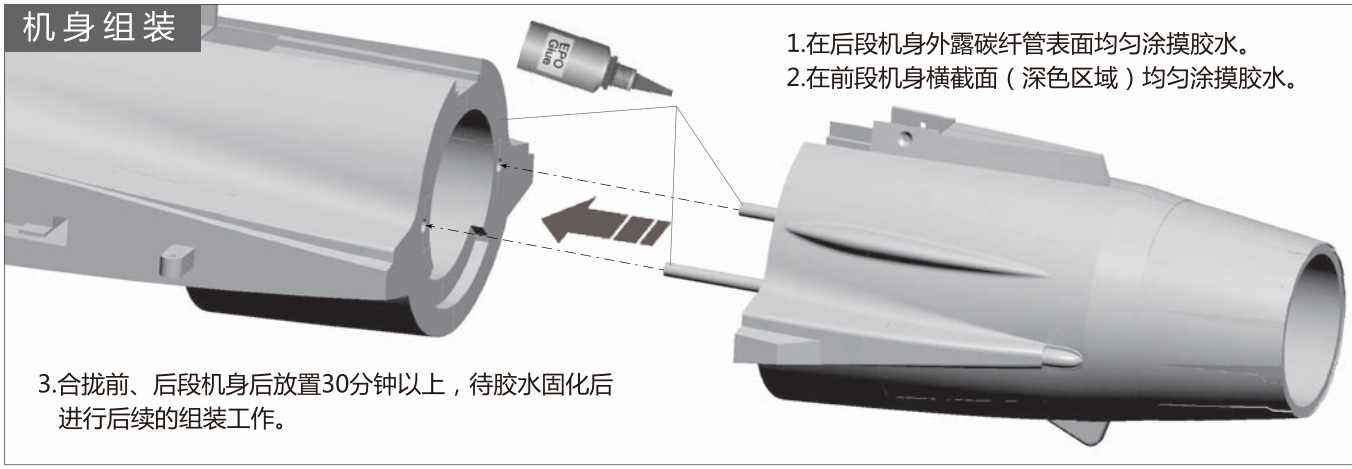


打开产品包装，核对包装清单。（不同配置的版本，包含内容不同！）

序号	配件名称	PNP	ARF Plus
1	前、后机身	预装所有电子设备	预装舵机
2	主翼	预装所有电子设备	预装舵机
3	鸭翼	预装所有电子设备	预装舵机
4	垂尾	预装所有电子设备	预装舵机
5	挂架	√	√

序号	配件名称	PNP	ARF Plus
6	座舱、机头罩	√	√
7	说明书	√	√
8	舵面控制钢丝	√	√
9	防滑垫	√	√
10	螺丝、碳纤管	√	√

机身组装



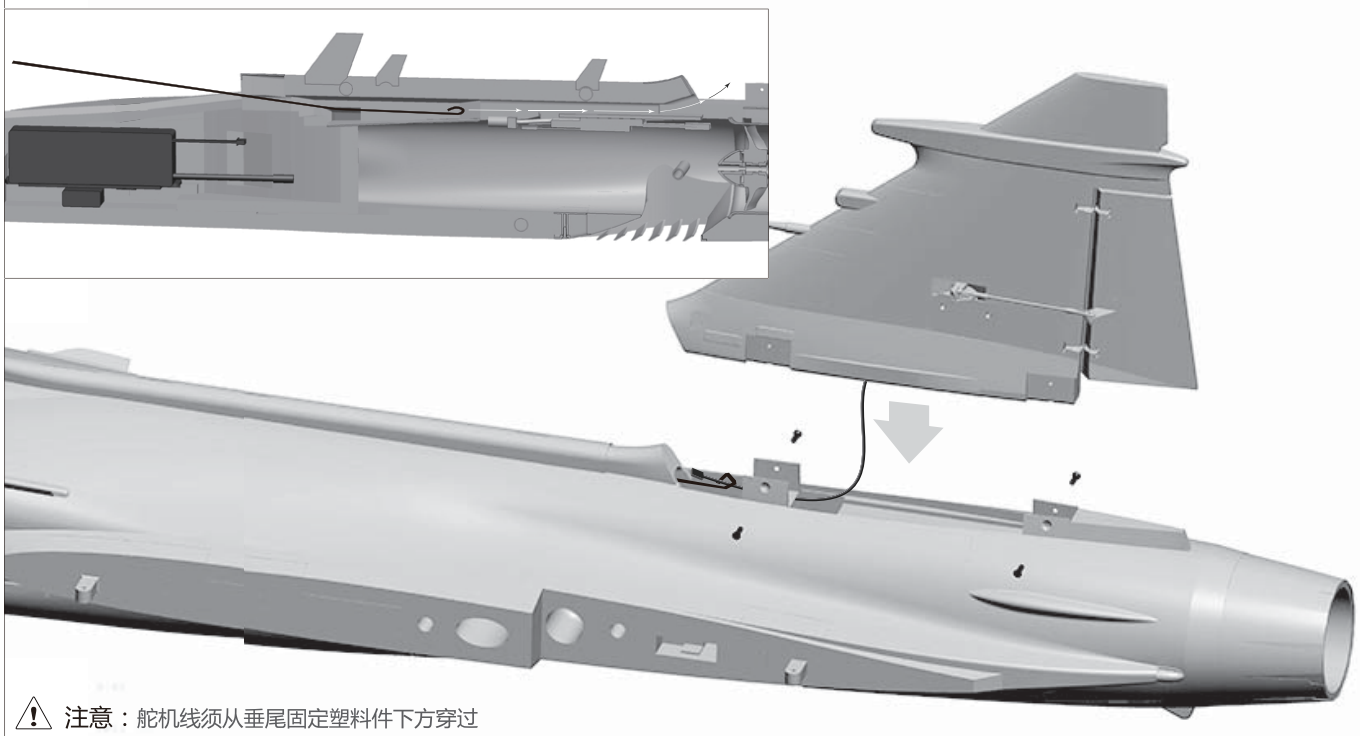
1.在后段机身外露碳纤管表面均匀涂摸胶水。
2.在前段机身横截面（深色区域）均匀涂摸胶水。

3.合拢前、后段机身后放置30分钟以上，待胶水固化后进行后续的组装工作。

垂尾组装

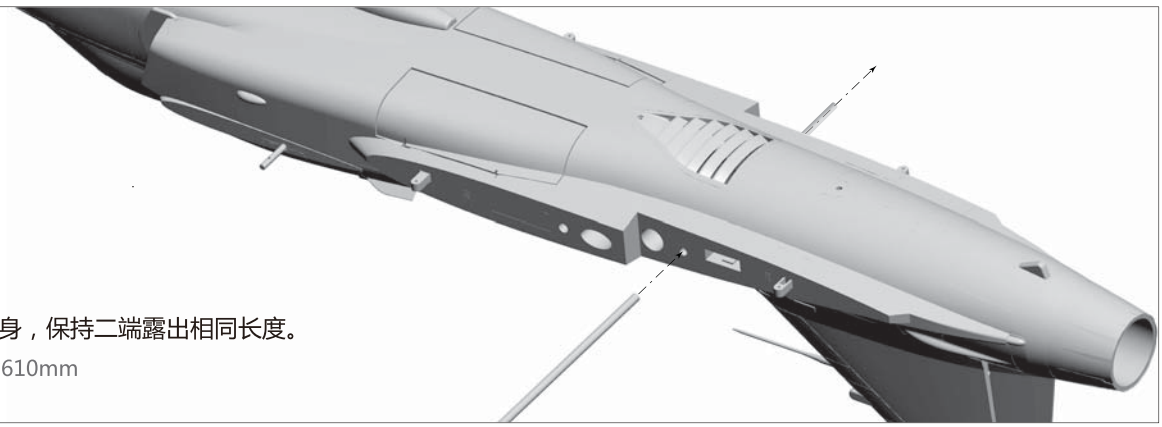
1.取出包装盒内附带的牵引钢丝，将其有钩的一端，从电池舱处塞入机体线槽。
2.使用牵引钢丝钩住垂尾舵机线，沿线槽拉入到电池舱内；
3.同时，垂尾安装在机身尾部后，使用4颗螺丝分别从二侧锁紧垂尾；

螺丝（FA3X10mm 4PCS）



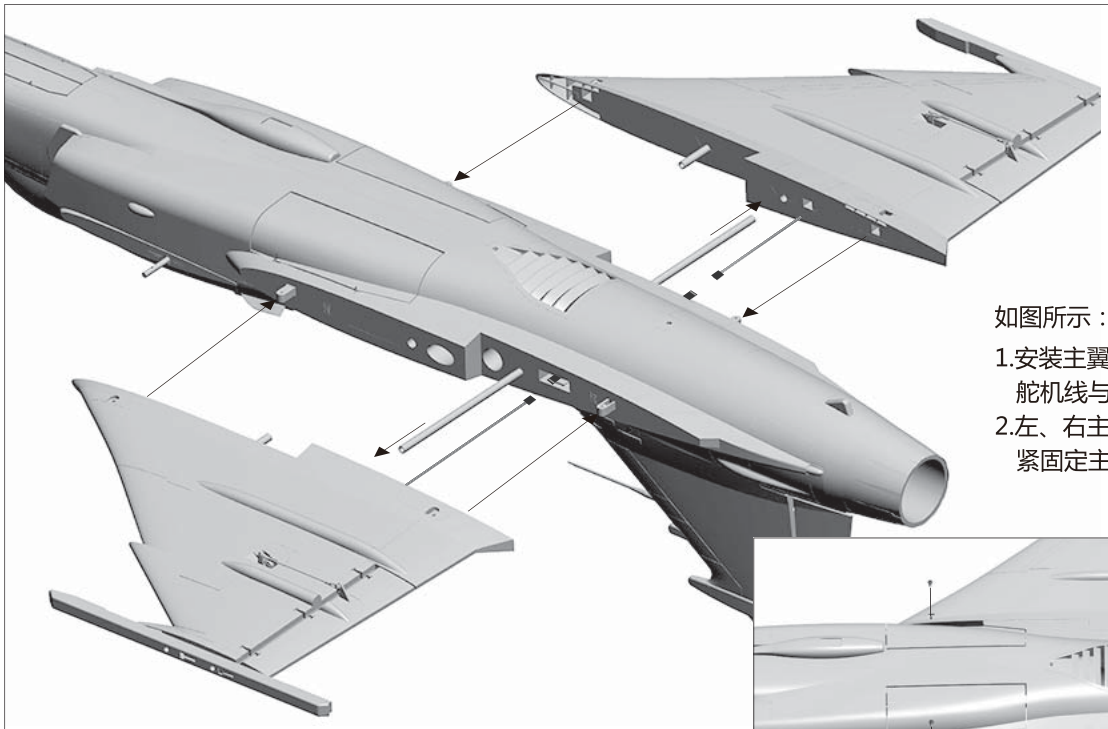
⚠ 注意：舵机线须从垂尾固定塑料件下方穿过

主翼组装



1.将碳纤管插入机身，保持二端露出相同长度。

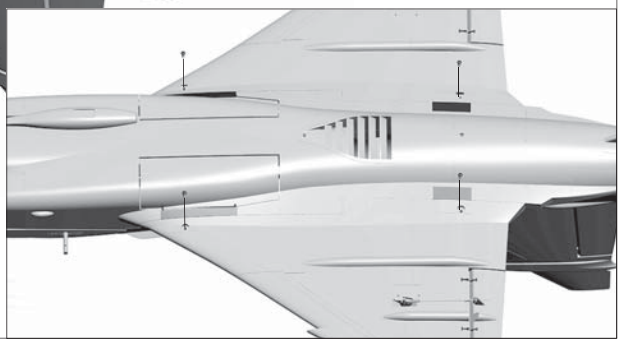
碳纤管规格: ¢8*610mm



如图所示：

1.安装主翼的同时，首先连接主翼舵机线与机身端延长线；

2.左、右主翼安装好后，用螺丝锁紧固定主翼。



螺丝 (PWM3x6mm 4PCS)

鸭翼组装

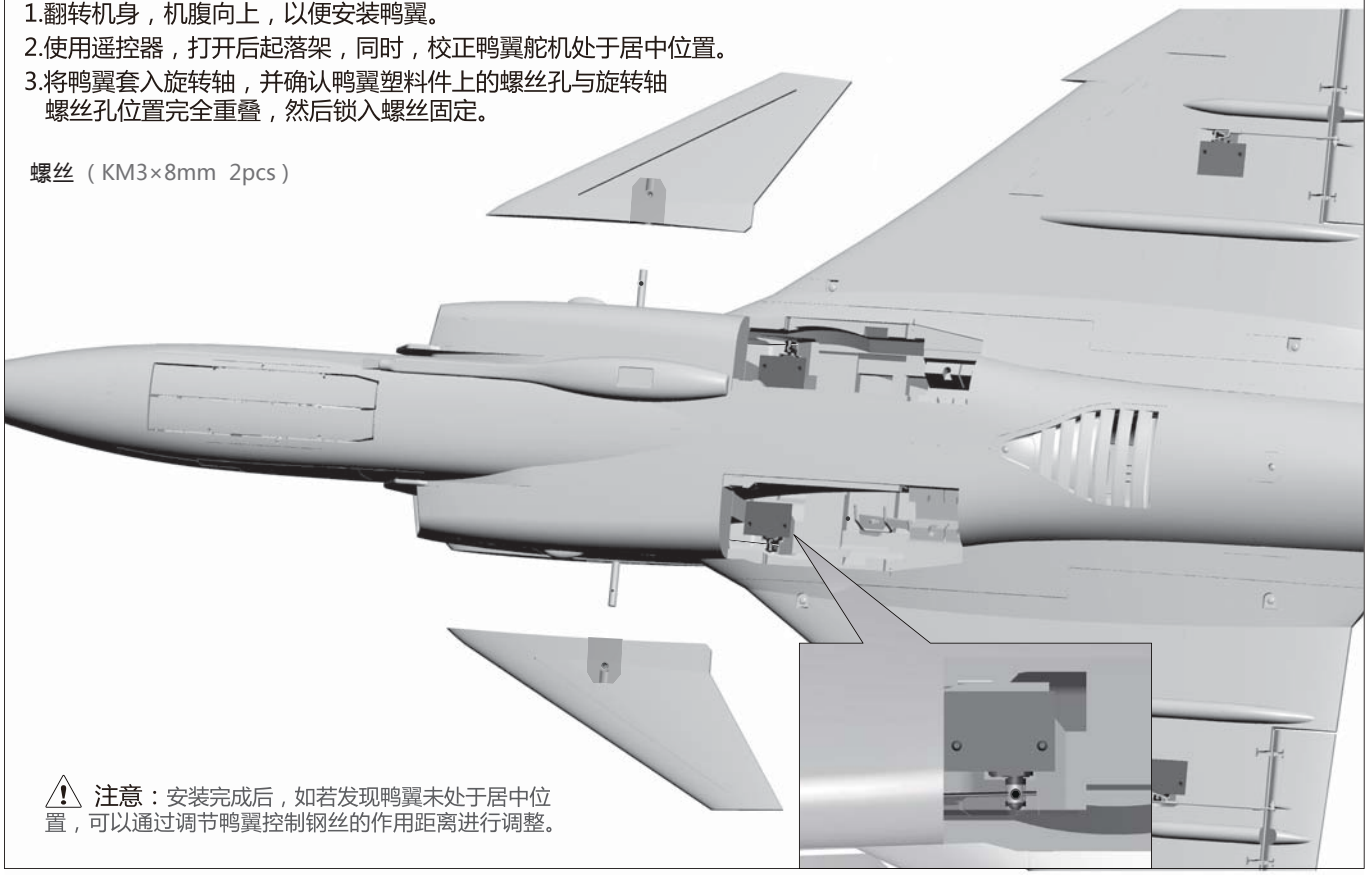
如图所示：

1.翻转机身，机腹向上，以便安装鸭翼。

2.使用遥控器，打开后起落架，同时，校正鸭翼舵机处于居中位置。

3.将鸭翼套入旋转轴，并确认鸭翼塑料件上的螺丝孔与旋转轴螺丝孔位置完全重叠，然后锁入螺丝固定。

螺丝（KM3×8mm 2pcs）



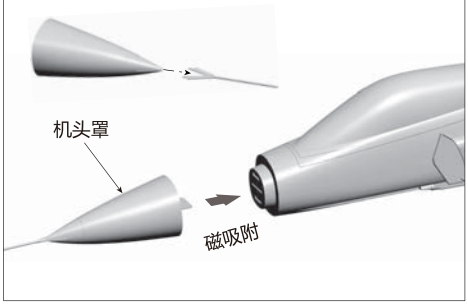
⚠ 注意：安装完成后，如若发现鸭翼未处于居中位置，可以通过调节鸭翼控制钢丝的作用距离进行调整。

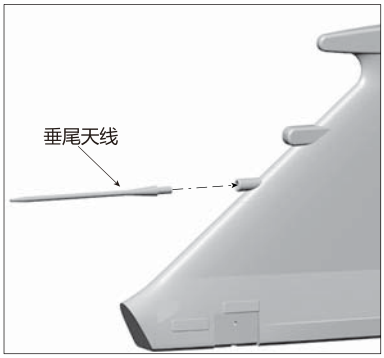
挂架组装

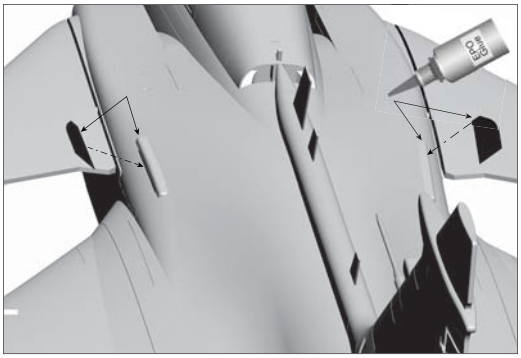
1. 如图所示，使用螺丝将挂架固定在左、右主翼翼尖。

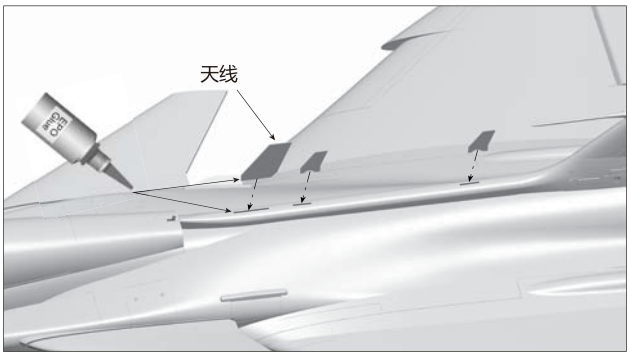
螺丝（PA3×10mm 4pcs）

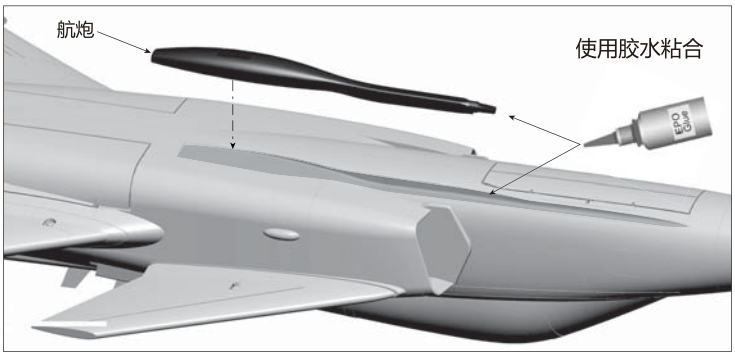
其它配件组装



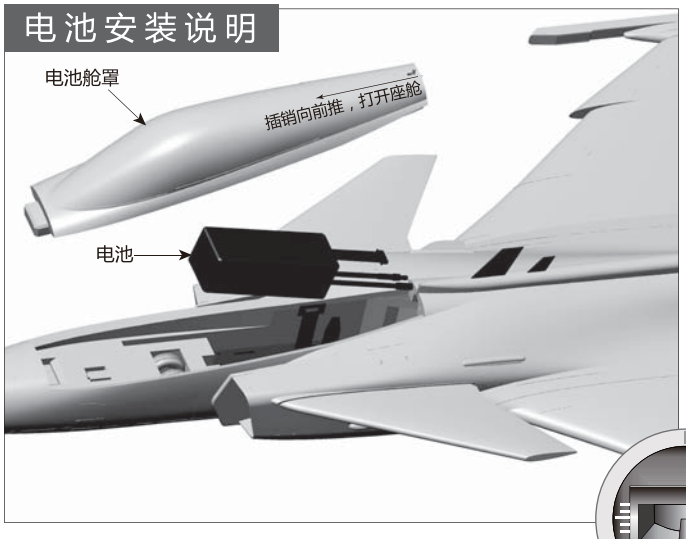


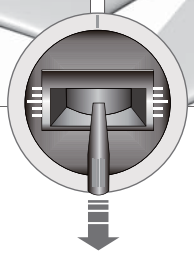






电池安装说明



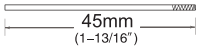


将电池与电调间接前，首先请打开发射机电源，确认油门杆处于低位。
安装电池后，启动油门前，请保证没有任何物体在螺旋桨转动直径以内，以免造成事故和人身伤害！

我们建议使用的电池容量和放电倍率如下：
6S 22.2V 4000mAh~6S 22.2V 5200mAh (1pcs)
放电倍率 ≥ **35C**

舵面控制钢丝尺寸及安装孔位

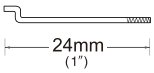
前轮转向控制钢丝尺寸



钢丝直径：Ø1.2mm

前轮转向控制钢丝安装孔位

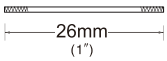
前舱门控制钢丝尺寸



钢丝直径：Ø1.2mm

前舱门控制钢丝安装孔位

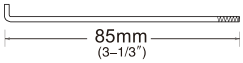
后舱门控制钢丝尺寸



钢丝直径：Ø1.2mm

后舱门控制钢丝安装孔位

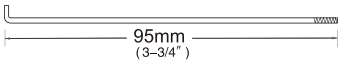
垂尾方向舵控制钢丝尺寸



钢丝直径：Ø1.5mm

垂尾方向舵控制钢丝安装孔位

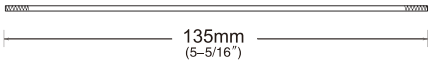
副翼控制钢丝尺寸



钢丝直径：Ø1.5mm

副翼控制钢丝安装孔位

鸭翼控制钢丝尺寸



钢丝直径：Ø1.5mm

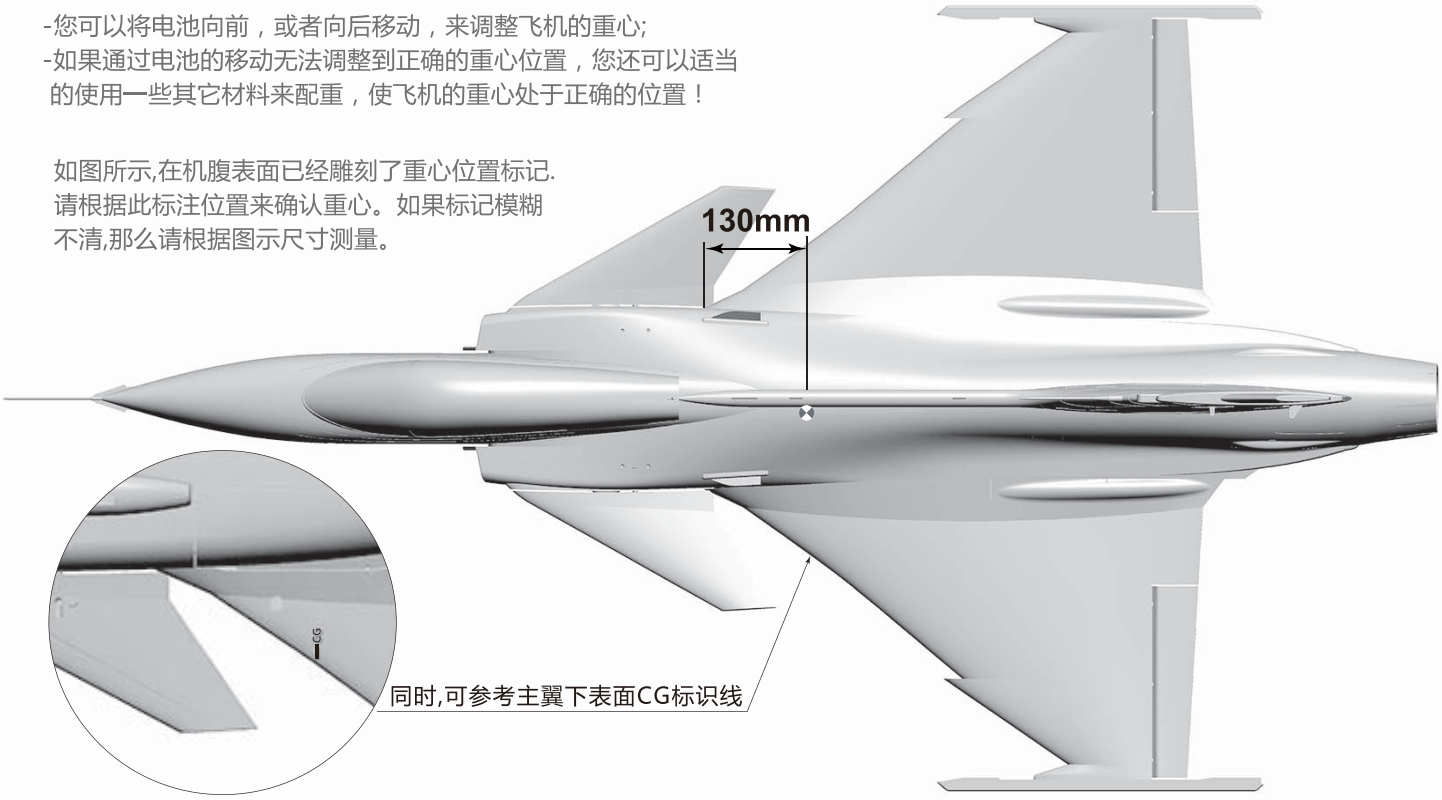
鸭翼控制钢丝安装孔位

重心示意图

正确的重心，直接关系到飞行的成功与否，请参考下面的重心标示图，来调整飞机的重心。

-您可以将电池向前，或者向后移动，来调整飞机的重心;
-如果通过电池的移动无法调整到正确的重心位置，您还可以适当的使用一些其它材料来配重，使飞机的重心处于正确的位置！

如图所示,在机腹表面已经雕刻了重心位置标记.
请根据此标注位置来确认重心。如果标记模糊不清,那么请根据图示尺寸测量。

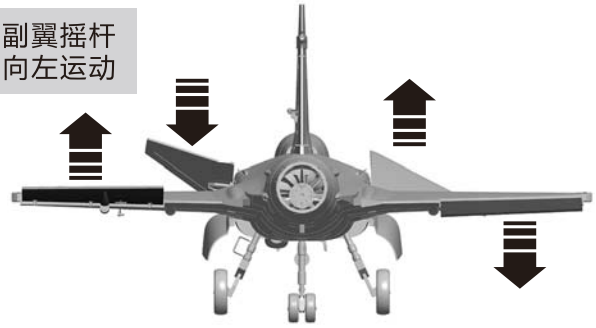


舵面测试

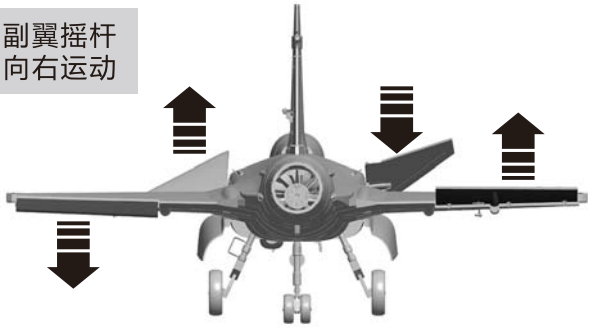
当您按前面的步骤组装好飞机后，连接电池，用遥控器测试每个舵面的工作情况，检查各个舵面是否处于居中位置，是否正常工作！

副　翼

副翼摇杆向左运动



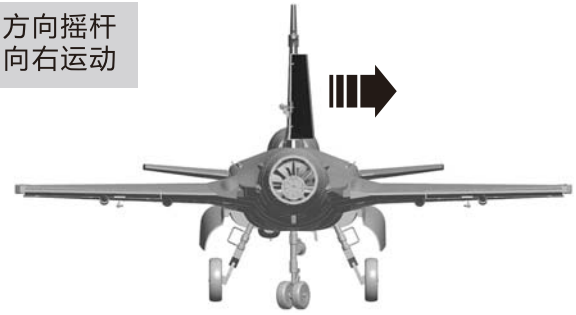
副翼摇杆向右运动



方向舵

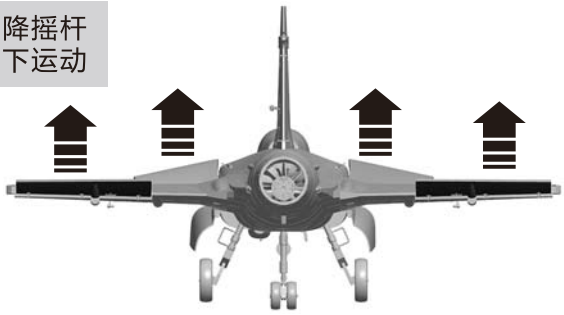
方向摇杆向左运动

方向摇杆向右运动

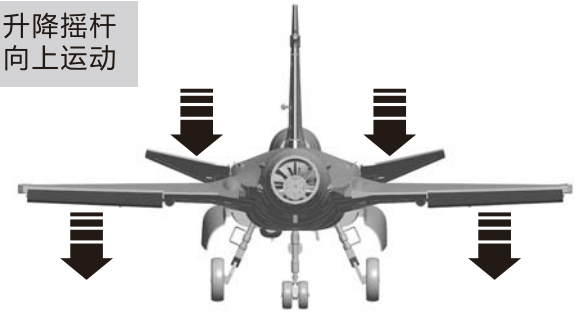


升降舵

升降摇杆向下运动

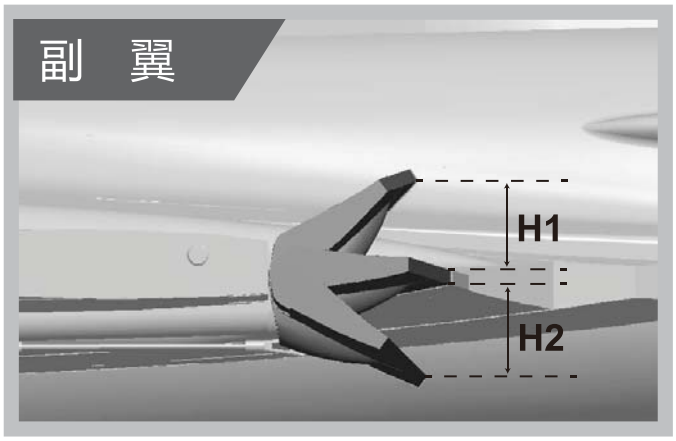


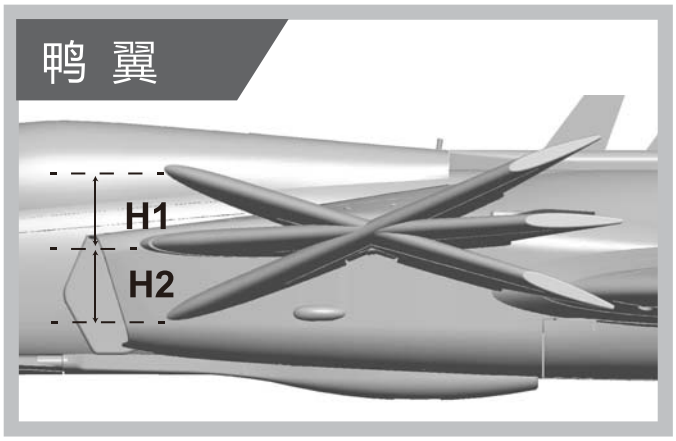
升降摇杆向上运动



大、小舵参数

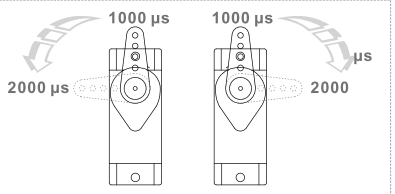
根据我们的测试经验，我们认为，按以下参数来设置大小舵量，将有助于飞行，舵量越大，模型飞机的动作响应更快，动作幅度可以更大。我们建议初次飞行使用大舵量起飞，然后根据个人情况调整到适合您的舵量。



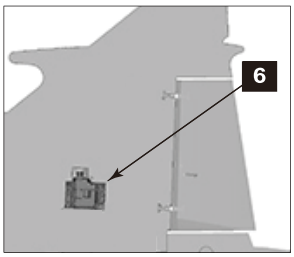


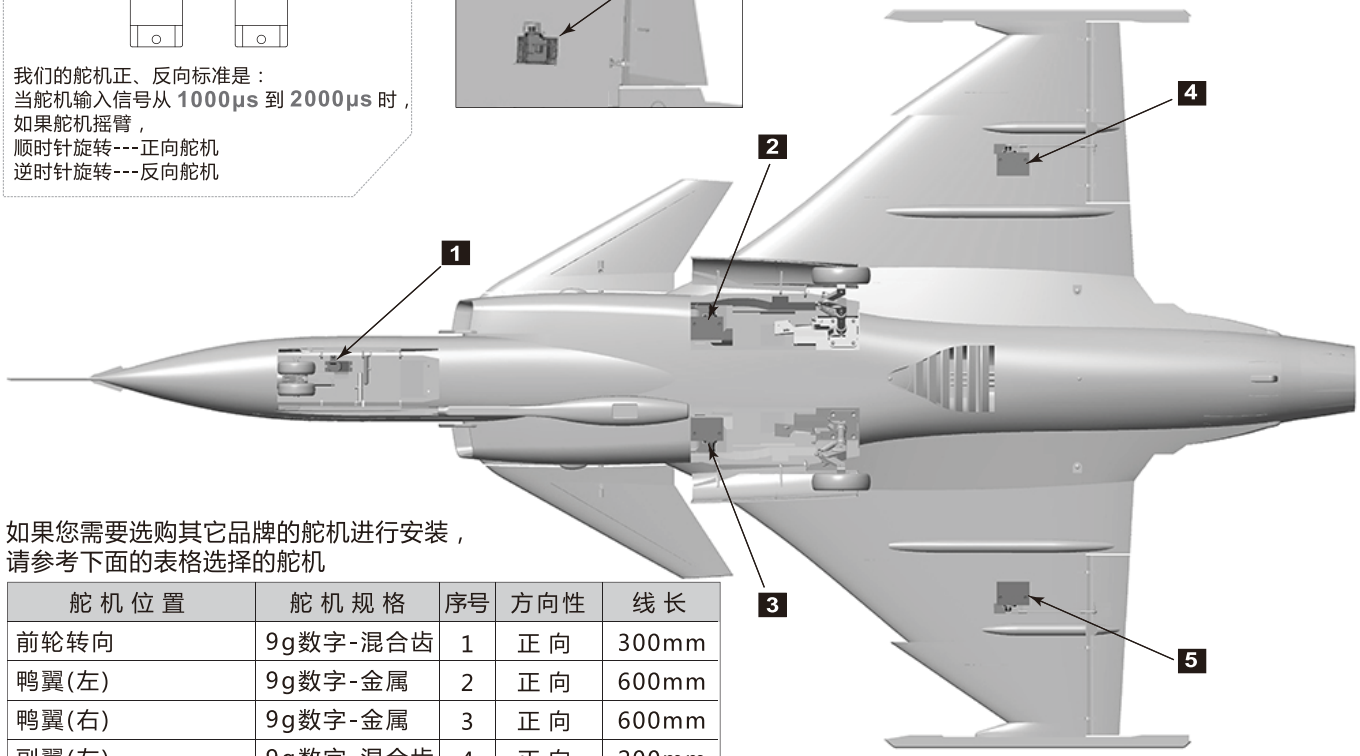
	鸭翼（翼根前端）	副翼（内侧）	方向舵（下端）
小舵量	H1/H2 27mm/27mm 舵量比率：70%	H1/H2 17mm/17mm 舵量比率：70%	H1/H2 27mm/27mm 舵量比率：80%
大舵量	H1/H2 35mm/35mm 舵量比率：100%	H1/H2 23mm/23mm 舵量比率：100%	H1/H2 32mm/32mm 舵量比率：100%

舵机使用介绍



我们的舵机正、反向标准是：
当舵机输入信号从 **1000μs** 到 **2000μs** 时，
如果舵机摇臂，
顺时针旋转---正向舵机
逆时针旋转---反向舵机



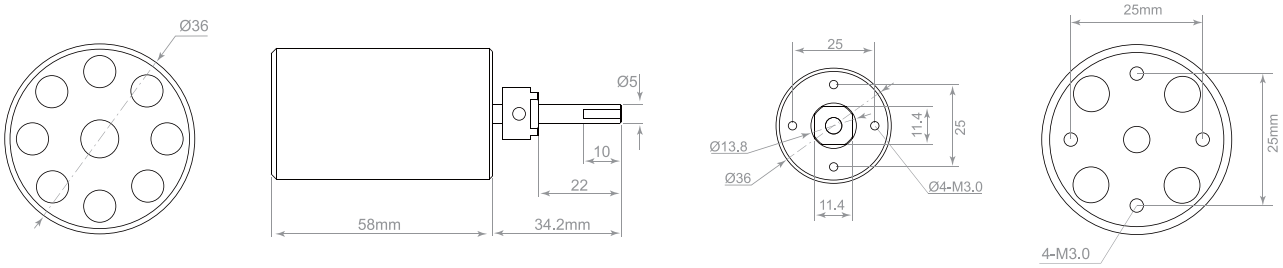


如果您需要选购其它品牌的舵机进行安装，
请参考下面的表格选择的舵机

舵机位置	舵机规格	序号	方向性	线长
前轮转向	9g数字-混合齿	1	正向	300mm
鸭翼(左)	9g数字-金属	2	正向	600mm
鸭翼(右)	9g数字-金属	3	正向	600mm
副翼(左)	9g数字-混合齿	4	正向	200mm
副翼(右)	9g数字-混合齿	5	正向	200mm
垂尾	9g数字-混合齿	6	正向	1050mm

电机参数

#MOI36584
3658-1920KV



Unit:mm

Item No.	Fan size	Motor specifications	Voltage (V)	Current (A)	Max power (W)	Thrust (g)	Efficiency (g/w)	Speed (rpm)	Weight (g)
E72313	80mm 9-Blade	3658-1920KV	22.2	90	2000	3400	1.7	42000	345