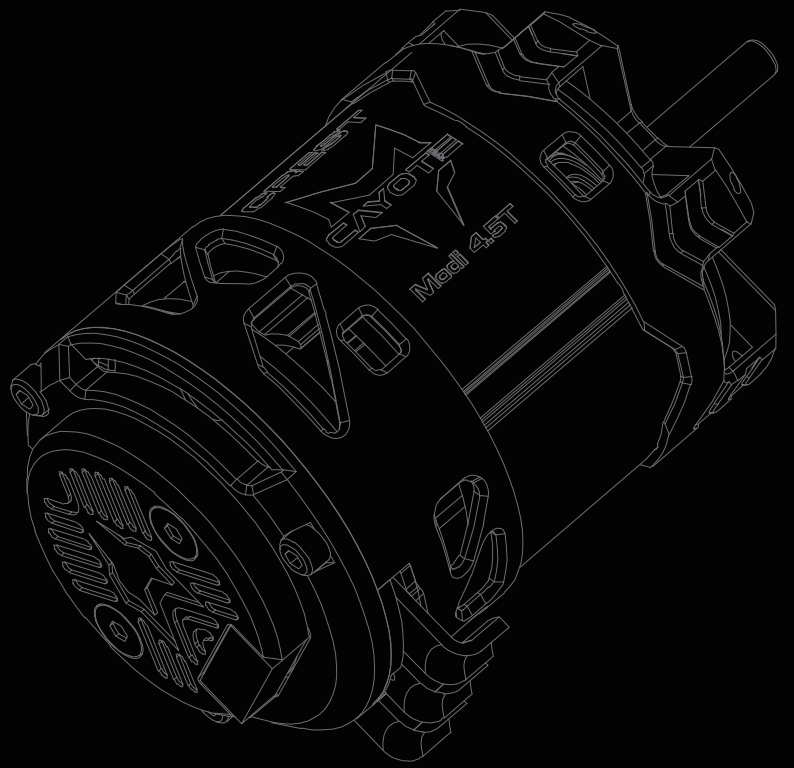
CREST
Modi Motor

使用说明书

User Manual



CAYOTE TEAM

Thank you for purchasing the CAYOTE professional sensored brushless motor.
This product delivers powerful performance. Improper use may result in personal injury or damage to equipment.
To ensure safety and optimal performance, please read this manual carefully before use and strictly follow all operating instructions.

感谢您购买CAYOTE专业竞赛级有感无刷电机产品。
由于本产品功率强劲，错误使用可能导致人身伤害或设备损坏。
为确保安全并获得最佳性能，请您在使用前务必仔细阅读本说明书，并严格遵守操作规范。

Disclaimer

1.The user assumes full responsibility for any risks or consequences arising from improper operation, unauthorized modifications, or failure to use the product as instructed in this manual.
2.The manufacturer shall not be liable for any direct, indirect, or incidental damages, including but not limited to equipment failure, data loss, personal injury, or third-party claims.
3.Any product disassembly, modification, or use of non-original parts without authorization will void the warranty, and the company reserves the right to pursue liability.
4.To continuously improve performance, we may update the product design, specifications, or features without prior notice. Please refer to the actual product for the most accurate information.
We are committed to providing you with high-quality products and services. If you have any questions, please contact our official customer service for professional support.

免责声明

1.用户须自行承担因不当操作、违规改装或未按说明书要求使用本产品所引发的一切风险及后果。

2.本公司不对任何直接、间接或附带损失(包括但不限于设备损坏、数据丢失、人身伤害及第三方索赔)承担法律责任。

3.未经授权的产品拆解、改装或使用非原厂配件导致的故障，将不在保修范围内，且本公司保留追究责任的权利。

4.为持续优化性能，我们可能在不另行通知的情况下调整产品设计、规格及功能，请以实际产品为准。

我们始终致力于为您提供优质的产品与服务。如有疑问，请联系官方客服获取专业支持。

Contents

目录

01 Precautions

To ensure your safety and optimal motor performance, please read and strictly follow the precautions below before use:

1. Installation & Connection

-Correct Connection:

Before connecting the motor, confirm that the wiring sequence of the ESC and motor matches exactly. Incorrect wiring may cause malfunction or permanent damage.

-Insulation Check:

All wires and connectors must be properly insulated to prevent the risk of short circuits.

-Soldering Guidelines:

When replacing motor input wires, soldering time should not exceed 5 seconds to avoid internal damage from overheating. Use a professional soldering iron rated above 60W.

2. Operating Environment

-Water & Oil Protection:

The motor must not come into contact with water, oil, fuel, or any conductive liquids. If accidental contact occurs, immediately power off and ensure the motor is completely dry before reuse.

-Temperature Management:

The motor housing temperature must not exceed 100°C (212°F). Prolonged overheating may cause rotor demagnetization or irreversible damage.

It is strongly recommended to enable the motor over-temperature protection feature in your ESC settings.

3. Operating Guidelines

-No High-Speed Free-Running:

Do not run the motor at full throttle without a gear or load installed, as overspeeding can damage the bearings or internal components.

-System Compatibility:

Before use, verify that the ESC, battery, and chassis are compatible with the motor specifications to prevent overload.

4. Safe Operation

-Secure Connections:

All plugs, screws, and connectors must be tightly secured. Loose connections may lead to signal loss, system failure, or component burn-out.

-Routine Checks:

Inspect the motor mount, gear mesh, and wire condition before and after each run. Address any signs of wear or looseness promptly to prevent failure.

5. Warranty & Maintenance

-Abnormal Conditions:

If you notice unusual noise, excessive heat, or unstable power output, stop using the motor immediately and contact customer support.

Important Note:

Improper use may lead to serious accidents or equipment failure. Please strictly follow all safety and operating guidelines.

02 Features

CAYOTE CREST Modi Professional Sensored Brushless Motor
Engineered for Competition. Built for Extreme Performance.

1. Race-Level Performance

Specifically designed for high-end competitive racing, delivering explosive power output and precise control to meet the demands of professional drivers.

2. High-Precision Sensing & Dynamic Balancing

-Integrated high-sensitivity Hall sensors ensure accurate signal transmission and instant throttle response.

-Precision-balanced rotor, calibrated through multi-stage processes, effectively suppresses vibration and ensures outstanding linearity of motor.

3. Smoothly Adjustable Timing

-Supports continuously variable timing adjustment from 20° to 50°, allowing users to fine-tune power curves based on track conditions.

-Features stable timing-lock technology to maintain consistent performance without power fade after adjustment.

4. Innovative Thermal Design

-Patented(*) open stator architecture with directly exposed core and large cooling ports enhances thermal conduction for efficient heat dissipation.

-High-temperature-resistant explosion-proof rotor combined with a high-efficiency stator ensures stable performance under sustained high loads.

5. Premium Materials for Superior Durability

-High-performance stator core materials help reduce heat loss, significantly improving overall energy efficiency and motor performance.

-Imported high-precision bearings ensure long operational life with minimal maintenance.

-High-current copper bus bars support extreme current loads for stronger power output.

-Hand-wound precision coils, individually crafted by skilled technicians, guarantee consistent performance across units.

6. Modular Maintenance-Friendly Design

-Quick-disassembly structure allows for easy cleaning and routine maintenance.

-Full range of compatible accessories available, including customizable components for repair, tuning, or upgrades.

7. Global Certification & Race Compliance

Fully compliant with IFMAR, ROAR, EFRA, and BRCA race regulations.
Certified by RoHS, CE, and FCC, ensuring international safety and quality standards.

03 Specifications

Model (Turns)	KV (No-load)	IR(mΩ)	No-load Current(A)	Max. Output Power(W)	Current @Max.Output Power(A)	Diameter/ Length(mm)	Axel Diameter/ Length(mm)	Standard Rotor	Poles	Weight(g)
3.5T	9500	1.8	8.5	470	130	Φ=35.8mm L=51.9mm	Φ=3.175mm L=14.1mm	Φ5-12.1	2	163.0
4.0T	8452	2.4	8.4	465	128			Φ5-12.1	2	163.0
4.5T	7540	2.8	7.6	460	125			Φ5-12.3	2	163.5
5.0T	7050	3.5	7.7	450	121			Φ5-12.3	2	165.0
5.5T	6160	4.2	6.2	430	116			Φ5-12.5	2	165.0
6.0T	5800	4.7	6.3	420	114			Φ5-12.5	2	166.0
6.5T	5280	5.5	5.1	410	114			Φ5-12.5	2	165.5
7.0T	5060	6.3	5.2	370	109			Φ5-12.5	2	164.5
7.5T	4620	7.6	4.3	350	104			Φ5-12.5	2	164.0
8.0T	4310	8.04	3.52	320	88			Φ5-12.5	2	167.0
8.5T	4042	9.34	2.85	290	85			Φ5-12.5	2	163.0
9.0T	3854	10	2.95	280	80			Φ5-12.5	2	167.0
9.5T	3600	11.9	2.38	260	66			Φ5-12.5	2	163.5

Notes:

1.KV Rating

The KV value is measured under no-load conditions with the following test parameters:

-Motor timing set to default 25°

-ESC timing compensation set to zero timing.

2.Temperature Management

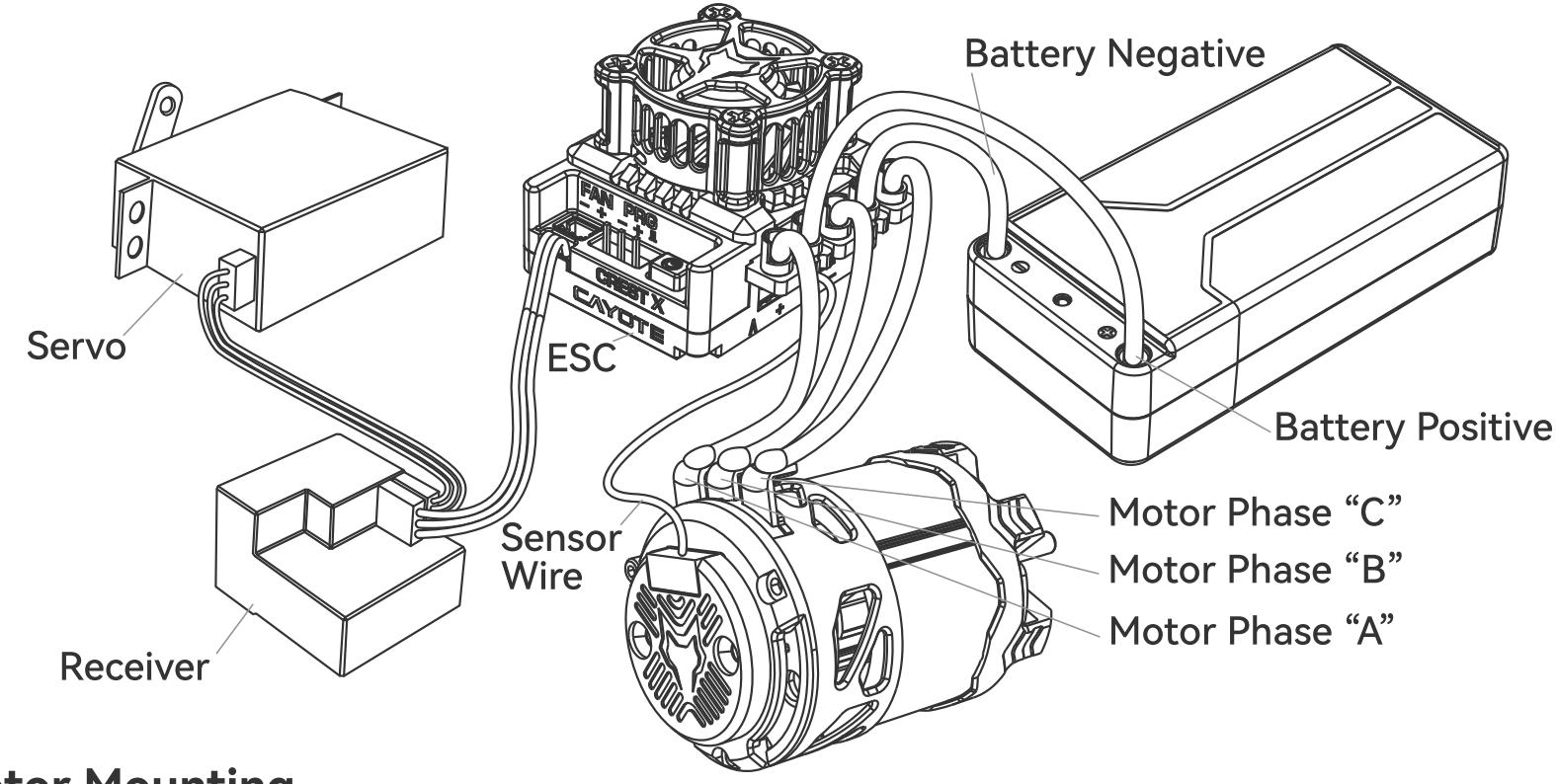
Excessive motor temperature may negatively affect performance and lifespan.
If overheating is observed during testing or operation, pause usage and allow the motor to cool down before continuing.

3.Load Configuration Guidelines

-The input current at peak power output can be used as a reference for matching system load and selecting a suitable ESC.

-Do not exceed this current value during continuous operation. Even though short bursts of higher load may be tolerated, prolonged operation beyond the peak power point can lead to performance degradation or permanent damage.

04 Installation & Connections



1.Motor Mounting

Secure the motor to your model using M3 screws (length ≤ 8mm).

Ensure the motor is firmly installed without overtightening to avoid thread damage.

2.Power Wire Connection

-Connect the ESC's A, B, C phase wires to the motor’s corresponding A, B, C terminals via soldering or connectors.

-Before wiring, verify the phase labels on both the ESC and motor terminals (refer to diagram for guidance).

3.Sensored System Connection (if applicable)

Sensor cable check:

-Ensure the sensor wire is undamaged, and the connector is intact.

-Connect the sensor cable between the motor and ESC in the correct orientation—incorrect sensor connection may prevent the system from running.

4. Pre-Power-On Checklist

Double-check the following:

-All power wires and sensor cables (if used) are correctly connected.

-Screws are tightened, and all wires are properly insulated and secured.

Safety Warning:
Incorrect wiring may damage the motor or ESC. It is strongly recommended to perform initial testing at low throttle and observe the motor’s direction of rotation.

05 Timing Adjustment

The CREST Modi motor offers an ultra-wide range of mechanical timing adjustment. By tuning the motor's timing angle, users can modify the powerband characteristics to achieve optimal performance. Below are the methods and principles for adjusting motor timing:

1. Timing Adjustment Method

Steps:

- Loosen the rear endbell screws.
- Rotate the endbell to the desired timing based on the engraved scale (default factory setting: 25°).

· Clockwise rotation: Decreases timing.
· Counterclockwise rotation: Increases timing.

- After adjustment, re-tighten the endbell screws to secure the setting.

2. Effects of Timing Adjustment

- Increasing timing:
  · Raises motor RPM.
  · Generates more heat and reduces efficiency.
  · Requires higher gear ratio for proper load matching.
- Decreasing timing:
  · Lowers RPM and reduces heat generation.
  · Improves running efficiency.

3. ESC Configuration Requirements

After adjusting the motor timing, it is essential to synchronize settings with your ESC. Please refer to your ESC manual for proper parameter adjustment.

4. Temperature Monitoring & Safety

Testing Procedure:

· After making timing adjustments, perform a full battery pack run to monitor

motor temperature.
· Temperature data can be obtained via the ESC telemetry or an infrared thermometer.
Overheat Handling:
· If the motor becomes too hot, pause usage and allow it to cool completely.
· For continued overheating, consider reducing the timing or increasing the gear ratio (i.e., larger spur gear or smaller pinion gear).

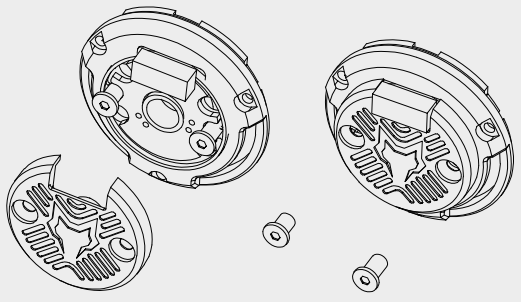
Note: Improper timing settings may cause motor damage. It is highly recommended to test incrementally after each adjustment to find the optimal setup.

06 Assembly & Disassembly

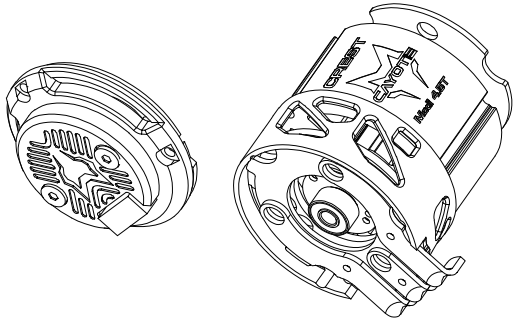
The CREST Modi motor features a durable and easy-to-disassemble design, making routine maintenance simple and efficient.
To ensure optimal performance and extend service life, regular maintenance is recommended:

-Inspect bearing condition for smooth operation.
-Clean dust and debris from the motor surface and internal components in a timely manner.

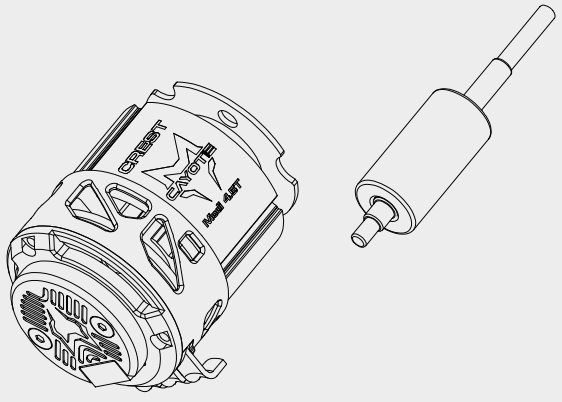
During reassembly, follow the illustrated steps carefully to ensure proper installation.
(For disassembly, simply reverse the order.)



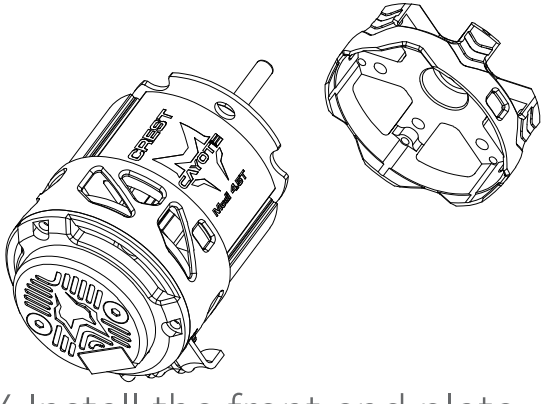
1.Install the rear end plate.



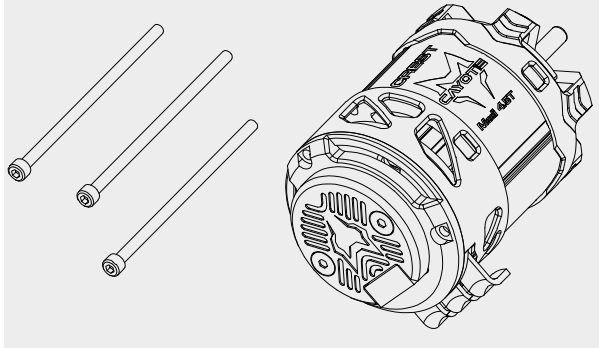
2.Install the sensor module.



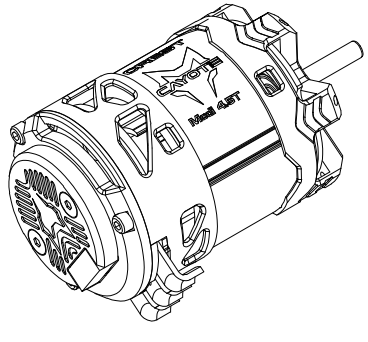
3.Install the rotor.



4.Install the front end plate.



5.Fasten the rear end plate with those long screws.

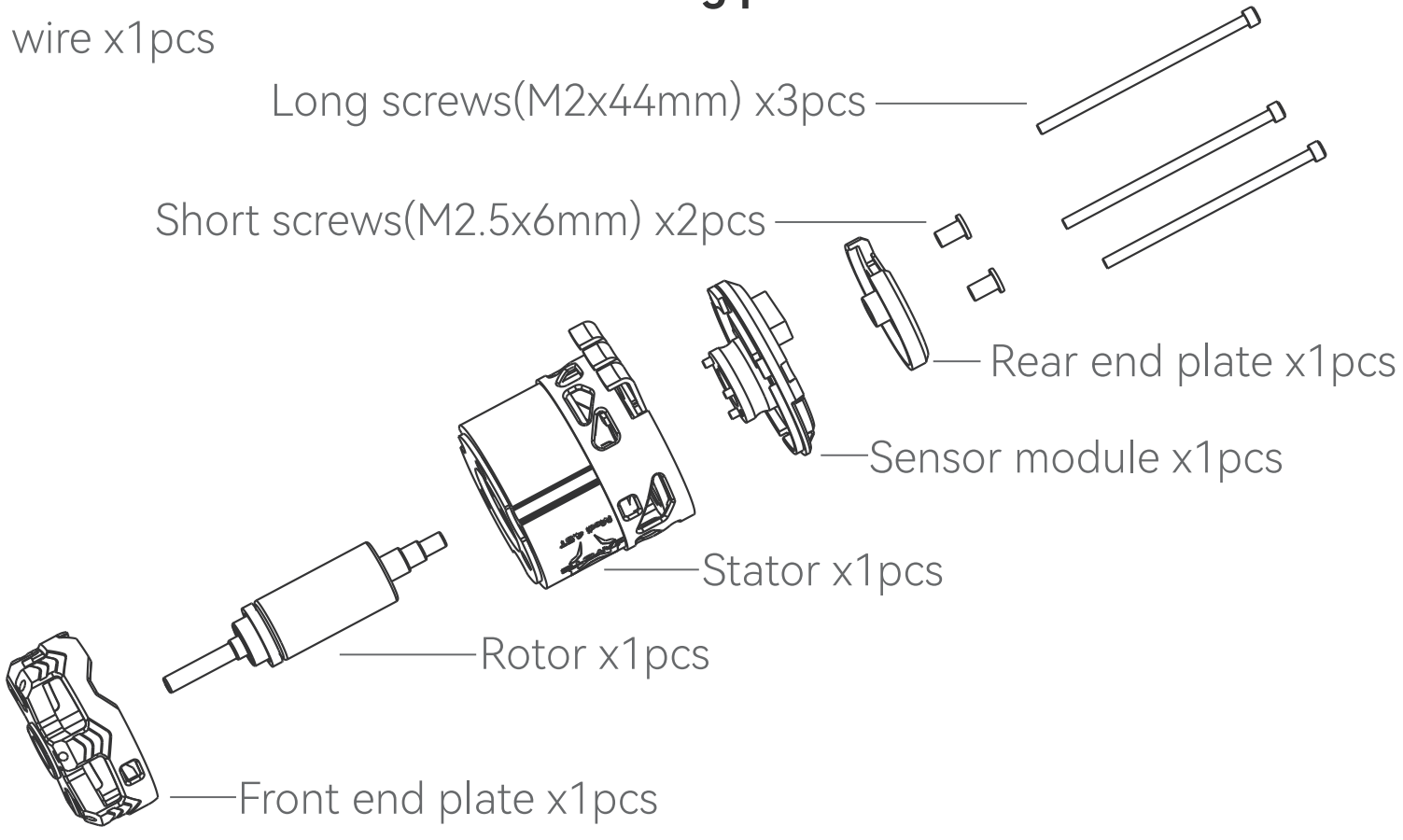


6.Finished product.

07 Parts List

CREST Modi motor contains the following parts:

Sensor wire x1pcs



01 注意事项

为确保您的安全并充分发挥电机性能，请在使用前仔细阅读并严格遵守以下注意事项:

1. 安装与接线

- 正确接线: 连接电机前，必须确认电调与电机的线序完全匹配，错误的接线可能导致设备故障或损坏。
- 绝缘检查: 所有电线及连接部位必须保持良好绝缘，避免短路风险。
- 焊接规范: 更换电机输入线时，焊接时间不得超过5秒，防止过热损坏电机内部元件，并使用60W以上的专业焊接设备。

2. 使用环境

- 防水防油: 严禁电机接触水、油、燃料或其他导电液体。如发生意外接触，请立即断电并彻底干燥后使用。
- 温度控制: 电机外壳温度不得超过100°C(212°F)，持续高温可能导致转子消磁或永久性损坏。建议开启电调的电机过温保护功能。

3. 运行规范

- 禁止空载高速运行: 未安装齿轮或负载时，严禁全油门操作，以免因超速损坏电机

轴承或内部结构。
- 合理动力匹配: 使用前请仔细核对电调、电池及车架规格，确保系统兼容，避免电机超负荷运行。

4. 安全操作

- 可靠连接: 所有插头和螺丝必须牢固安装，接触不良可能导致设备失控或部件烧毁。
- 定期维护: 每次使用前后应检查电机固定状态、齿轮啮合情况及线材是否磨损，及时排除隐患。

5. 保修与维护

- 异常处理: 如电机出现异响、异常发热或动力不稳定，请立即停止使用并联系售后支持。

重要提示: 不当操作可能引发严重事故，请务必遵守操作规范!

02 产品特点

CAYOTE CREST Modi 专业竞赛级无刷电机 - 专业性能 极致体验

1. 竞赛级性能

专为高端竞速打造，提供爆发式动力输出与精准控制，满足专业车手对极致性能的追求。

2. 高精度传感与动平衡技术

- 内置高灵敏度霍尔传感器，确保信号精准传输，实现无延迟响应。
- 精密动平衡转子，经过多重校准工艺，有效抑制振动，带来超线性动力输出。

3. 无极进角调节

- 支持无级连续进角调节(20°-50°可调)，可根据赛道特性自由优化动力曲线。
- 采用稳定进角锁定技术，确保调整后性能持久可靠，无动力衰减。

4. 创新散热结构设计

- 专利（*）开放式定子架构，铁芯直接外露，配合大尺寸散热孔，实现高效热能传导。
- 耐高温防爆转子结构 + 高性能散热定子，持续高负载运行仍保持稳定性能。

5. 顶级用料，可靠耐用

- 高性能定子铁芯材料：有效减少热能损耗，提升能效转换。
- 纯进口高精度轴承: 确保超长运转寿命，减少维护需求。
- 超强耐流铜排: 支持超高电流通过，动力输出更强劲。
- 手工精密绕线工艺: 每台电机均经过技师手工优化，保证一致性。

6. 模块化维护设计

- 快拆式结构，易于拆装便于日常清洁保养。
- 全系配件支持，提供多种替换组件(含定制化选项)，满足维修升级需求。

7.国际认证与赛事兼容

符合 IFMAR、ROAR、EFRA、BRCA 赛事规则，已通过 RoHS、CE、FCC 等认证。

03 产品规格

型号	KV值(空载)	内阻(mΩ)	空载电流(A)	最大输出功率(W)	最大输出功率的电流(A)	外径和长度(mm)	轴径外露轴长(mm)	标配转子	马达极数	重量(g)
3.5T	9500	1.8	8.5	470	130			Φ5-12.1	2	163.0
4.0T	8452	2.4	8.4	465	128			Φ5-12.1	2	163.0
4.5T	7540	2.8	7.6	460	125			Φ5-12.3	2	163.5
5.0T	7050	3.5	7.7	450	121			Φ5-12.3	2	165.0
5.5T	6160	4.2	6.2	430	116			Φ5-12.5	2	165.0
6.0T	5800	4.7	6.3	420	114	Φ=35.8mm	Φ=3.175mm	Φ5-12.5	2	166.0
6.5T	5280	5.5	5.1	410	114			Φ5-12.5	2	165.5
7.0T	5060	6.3	5.2	370	109	L=51.9mm	L=14.1mm	Φ5-12.5	2	164.5
7.5T	4620	7.6	4.3	350	104			Φ5-12.5	2	164.0
8.0T	4310	8.04	3.52	320	88			Φ5-12.5	2	167.0
8.5T	4042	9.34	2.85	290	85			Φ5-12.5	2	163.0
9.0T	3854	10	2.95	280	80			Φ5-12.5	2	167.0
9.5T	3600	11.9	2.38	260	66			Φ5-12.5	2	163.5

备注:

1.KV值为电机在空载状态下测得，测试条件为:

-电机进角设置为默认25度

-电调进角补偿设为零进角

2.温度管理

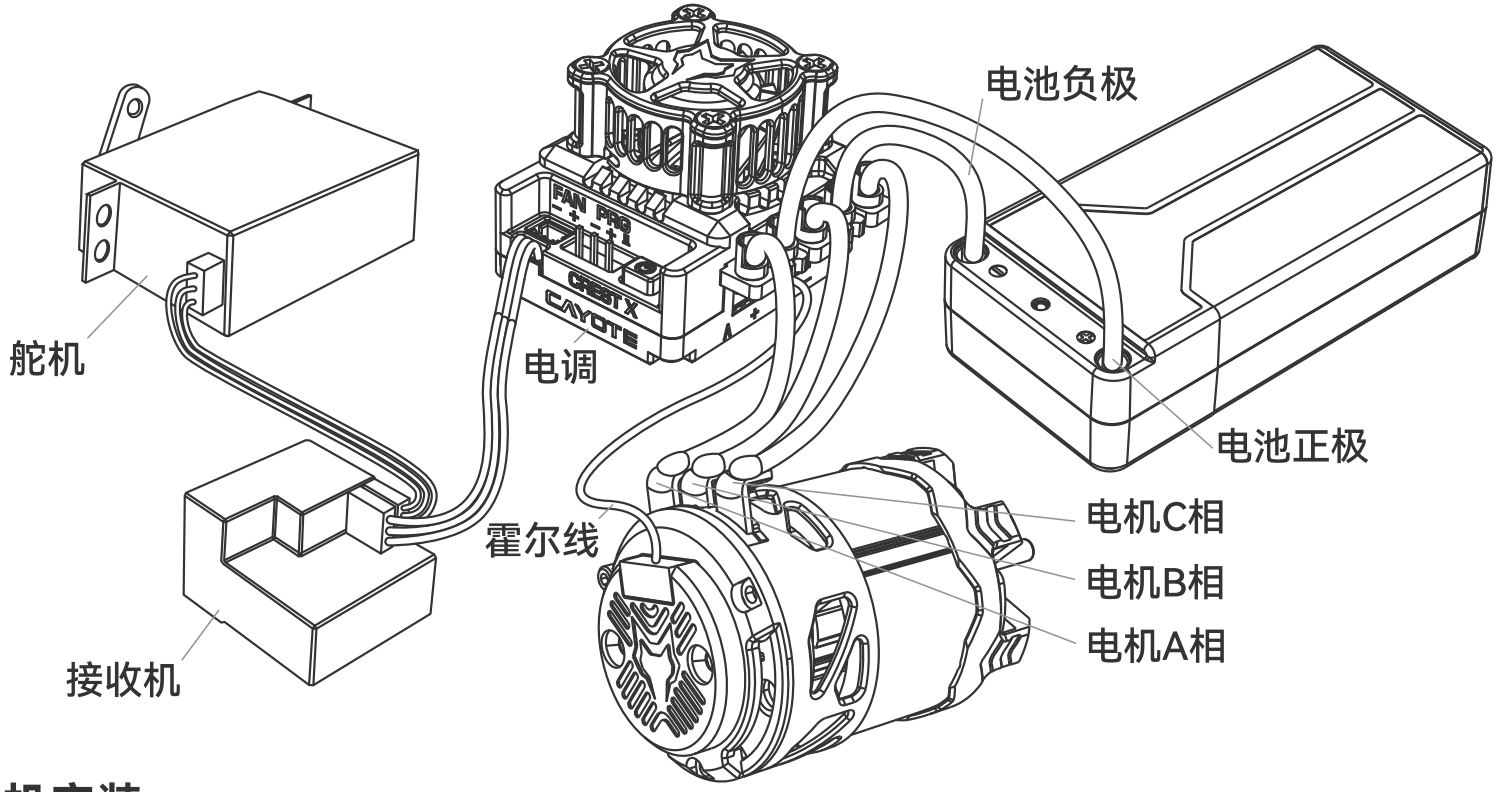
电机过热将影响性能与寿命，测试或运行中如发现温度过高，请暂停使用并等待冷却后再继续操作。

3.负载配置建议

-最大输出功率点对应的输入电流可作为负载匹配及电调选型的参考基准。

-严禁使负载配置超过该功率点(即实际输入电流不可长期高于最大功率点电流)，即使短时重载允许运行，仍可能导致性能下降或设备损伤。

04 安装与连接



1.电机安装

使用 M3螺丝(长度≤8mm) 将电机固定至模型，确保安装牢固但不过度紧固。

2.动力线连接

严格匹配相序:

-将电调(ESC)的 A、B、C三相线分别与电机对应的 A、B、C端子焊接/连接。

-接线前，请核对电调与电机端子的相位标记(如图示)。

3.有感系统连接(如适用)

感应线检查:

-确保感应线无破损，插头完好。

-按正确方向连接电机与电调的感应接口(错误连接可能导致无法运行)。

4.通电前确认

双重检查:

-确认所有动力线、感应线(如有)连接正确无误。

-检查螺丝紧固度与线路绝缘状态。

安全提示: 错误的接线可能损坏设备！建议首次通电时低速测试，观察电机转向是否正常。

05 进角调节

CREST Modi电机提供了超宽的机械进角调节范围，通过调整电机的进角可改变动力输出区间和特性，以达到最佳的性能。以下为进角调节方法和原则:

1. 进角调节方法

操作步骤:

-松开电机后盖的固定螺丝

-根据后盖刻度调整至目标进角(出厂默认25°)

- 顺时针旋转: 减小进角
- 逆时针旋转: 增大进角

-调节完成后，务必拧紧后盖螺丝

2. 进角调节影响

-增大进角:

- 提高电机转速
- 增加发热量，降低效率
- 需搭配较大齿比

-减小进角:

·降低转速，减少发热
·提升运行效率

3. 配套设置要求

调节进角后，必须同步调整电调(ESC)参数，具体操作请参考电调说明书。

4. 温度监控与安全

-测试要求:
·完成进角调整后，需进行完整电池组测试，监测电机温度。
·可通过电调数据或红外测温仪获取实时温度。

-过热处理:
·若温度过高，请暂停使用并冷却电机;
·持续过热时，应减小进角或增大齿比(更多齿数的大齿/更少齿数的小齿)。

注意: 不当的进角设置可能导致电机损坏！建议首次调整后逐步测试优化。

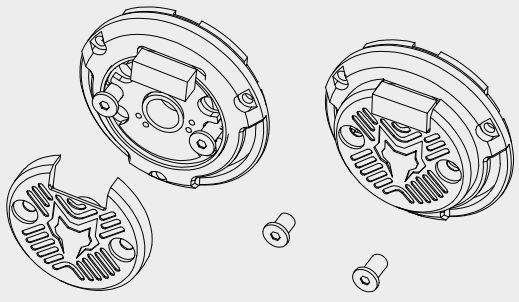
06 装配说明

CREST Modi电机采用坚固且易于拆装的结构设计，便于日常维护保养。为保持电机最佳性能并延长使用寿命，建议定期进行以下维护:

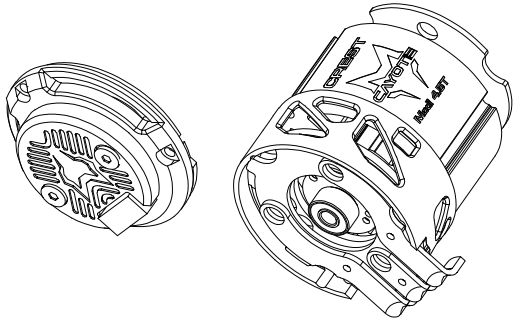
1.检查轴承运行状态

2.及时清理电机表面及内部积尘

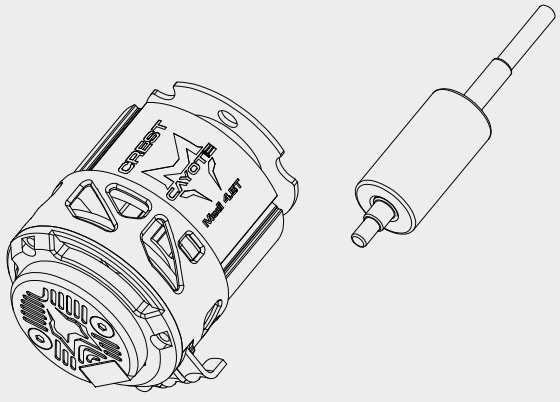
安装时请参照图示步骤规范操作，确保安装到位(拆卸时的顺序相反)。



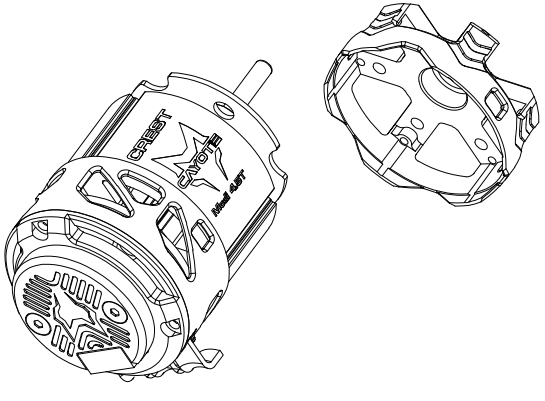
1.装配后盖



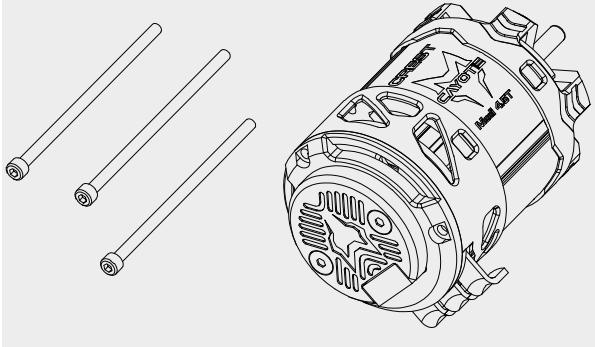
2.装配后盖组件



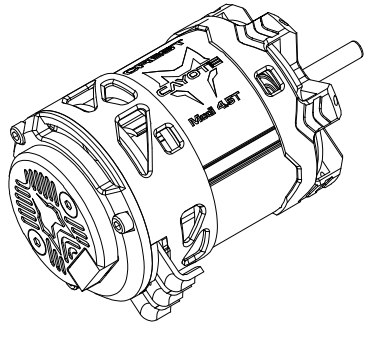
3.装配电机转子



4.装配前端盖组件



5.装配尾盖固定螺丝



6.装配好的成品图

07 零件清单

CREST Modi电机零部件包含如下:

霍尔线 x1pcs

CREST
Modi Motor

CAYOTE TEAM