

Brand/Excellence/Focus/Leadership/Future

2021

# Hub Motor 轮毂电机

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**PRIMOPAL**

# Bring Out the Best in Motion



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PrimoPal Motor Co., Ltd. is a joint-venture manufacturing, engineering and trading company, located at the free-trade zone of Shanghai, China. PrimoPal specializes in development, production and selling of various high-quality and cost-effective precision motor and motion control products, including Hybrid stepper motors, PM stepper motors, Linear actuators, Close-loop stepper motors, Brushless DC motors, Brushless servo motors, AC servo motors, PM DC motors, AC induction motors, Synchronous motors, Gear motors, Stepper drives, Brushless DC drives, Hybrid servo drives, AC servo drives, Brushless servo drives, Brush servo drives, Encoders, Spur gearboxes, Planetary gearheads, Brakes, Power supplies, Accessories, and so on.

Since establishment, PrimoPal is committed to providing outstanding quality, economical solutions, impeccable support and after-sales service for every client. Our manufacturing bases are equipped with advanced quality testing devices, precise injection molding machines, auto high-speed punches, auto winding machines and other advanced manufacturing equipment. It makes us have the ability of continuously providing products with superior quality. Besides, we have an engineering team with many years of experience in motor design and application engineering. This ability of offering custom products often gives our customers the great benefit.

For PrimoPal, the customer is not only a buyer, but also a long-term business partner. We work not only to meet their expectations, but also to exceed them through continuous cycles of learning. We believe it is the key to a successful business relationship that understanding our customer's goals, delivering what our customers need and when they need it. To demonstrate our commitment to all our customers, PrimoPal has adopted "Bringing out the Best in Motion" as our official slogan, which means our ultimate goal is to become one of the world's top level companies in the industry of precision motor and motion control system. The pursuit of excellence encourages all PrimoPal employees to forge ahead into improving our business processes and increasing our management efficiency. We have no doubt that our endeavors enable us to maintain strong presence in the competitive market.

Now, let us help you find the right solution for your motor and motion control systems.

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## PRODUCT NUMBER CODE

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**PHUM-** Shanghai PrimoPal Precision Motor Co.,Ltd. Hub motor

**Type:**

**EBK-ELECTRIC BICYCLE KI**

**F-Front**

**FTF-FAT TIRE FRONT**

**G-GEAR (Reduction Ratio)**

**GF-GEAR FRONT**

**GL-GEAR LESS**

**GSS-GEAR SINGLE SPEED**

**IN-INCH**

**LW-Light weight**

**M-Middle D-drive**

**MA-Magnesium alloy**

**R-REAR**

**TS-TORQUE SENSOR**

**Number:**

**250/300/350/750/1000/3000** - Actual rating power

**01/02-** The same series of products

# How To Select The Right Motor For An Electric Bicycle

## 如何为电动自行车选择合适的马达

### Motor Location:

### 电机位置

Motors can typically be located in three different places on your bike: 1. Front wheel, 2. Rear wheel, or 3. Bottom bracket (Mid-drive motor). The front and rear wheel motors are known as hub motors because they take over the hub of the wheel. The primary advantage of these types of motors are they are relatively simple and straightforward to do a conversion once you get a wheel built around the motor - just replace your wheel, connect the battery, and you're off! The mid-drive motors replace your crank and chain ring through your bottom bracket. The advantages of these motors are they end up taking advantage of your gears and keep the weight distribution low and near the center of your bike.

电机通常可以放在你的自行车上的三个不同的地方：1.前轮，2.后轮3.底部支架（中驱动电机）。前轮和后轮马达被称为轮毂马达，因为它们接管了轮毂。这些类型的马达的主要优点是，它们相对简单和直接做转换，一旦你得到一个轮子周围的马达——只需更换你的轮子，连接电池，就可以了！中间驱动电机通过你的底部支架更换曲柄和链环。这些马达的优点是，他们最终利用你的齿轮，保持重量分布低和靠近你的自行车的中心。

## Front VS Mid VS Rear-Hub Motors

### 前驱电机VS中置电机VS后驱电机

Regardless of the type of electric bike you're looking to buy, a key thing to consider is the position of the motor on the bike. This can affect everything from how the bike handles to how easy it is to transport. As a general rule of thumb, mid-hub motors tend to be more expensive than front or rear-hub motors, but most people find they offer a smoother ride. Of course, the best way to determine which motor feels right for you is to test ride the e-bike for yourself, but the following pros and cons will help you narrow down your choice.

不管你想买哪种类型的电动自行车，一个需要考虑的关键问题是马达在自行车上的位置。这将影响从自行车的处理方式到运输的便利程度。作为一般的经验法则，中轮毂电机往往比前轮毂或后轮毂电机更昂贵，但大多数人发现它们提供了更平稳的乘坐。当然，确定哪种马达感觉适合你的最好方法是测试自己骑电动自行车，但以下利弊将帮助你缩小选择的范围。

## Front-Hub Motors 前轮毂电机

Positioned on the front wheel hub, they're common on folding bikes and cheaper touring e-bikes.

(位于前轮毂, 在折叠自行车和更便宜的旅游电动自行车)

**Pros:** The motor doesn't wear down the chain - the motor is directly powering the wheel, rather than the drive chain. You can customise gears easily.

(优点: 电机不会磨损链条-马达是直接为车轮提供动力, 而不是驱动链, 你可以很容易地定制齿轮。)

**Cons:** The bike can be unbalanced- the front is heavier than the back. Tricky to remove the front wheel for transportation. Front wheel can slip on steep climbs if you don't distribute your weight properly. The motor pulls you forward, rather than pushing you, which can feel strange.



(缺点: 自行车可能会不平衡——前轮比后部重。拆卸前轮进行运输。如果你不能正确分配重量, 前轮可能会在陡峭的爬坡上滑动。马达会把你向前拉, 而不是推你, 这可能会感觉很奇怪。)

## Mid-hub motors 中轮毂电机

E-bikes with a mid-hub motor (sometimes called a mid-engine motor) are typically more expensive. They do have some significant advantages though.

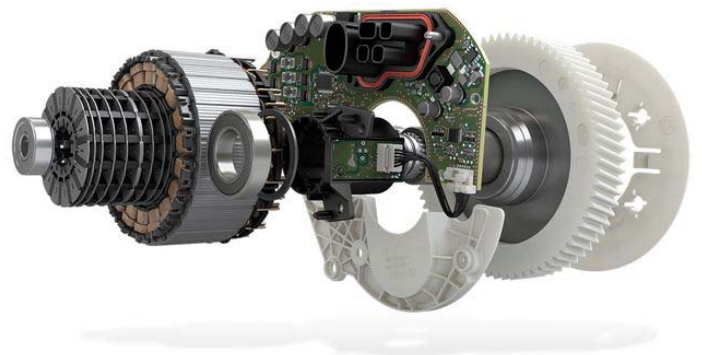
带有中轮毂发动机 (有时也称为中轮毂发动机) 的电动自行车通常更贵。但它们确实有一些显著的优势。

**Pros:** More balanced weight distribution, making it easier to lift and carry. Best for off-road riding because the centre of gravity is lower compared with front or rear-hub motors. You can easily customise, switch or replace wheels. Wheels are easy to remove for transportation.

优点: 更平衡的重量分布, 使它更容易提升和携带。最好的越野骑, 因为重心低于前或后轮毂马达, 你可以轻松地定制, 开关或更换车轮, 车轮很容易拆卸运输。

**Cons:** You can't customise the gear setup as easily. The crankset (pedals and front chain ring) can't be changed, although you can change the cassette (gears) on the rear hub so you're not completely limited. Drive chain can wear down more quickly.

缺点: 你不能那么容易地定制齿轮设置。曲轴组 (踏板和前链环) 不能改变, 虽然你可以改变后轮毂上的盒式磁带 (齿轮), 这样你不会完全限制驱动链可以磨损更快。



## Rear-hub motors 后轮毂电机

These are situated on the rear wheel hub.

这些都位于后轮轮毂上。

**Pros:** The motor pushes you forward, which feels more natural to most people than being pulled forward by a front-hub motor. The motor should wear down the chain less quickly than a mid-hub motor. Easy to customise the gears.

**优点:** 电机推动你向前, 这对大多数人来说比被前轮毂电机向前拉更自然。马达应该比中轮毂电机更容易定制齿轮。

**Cons:** You need a specially designed rear wheel. Tricky to remove the rear wheel for transportation. The bike can be unbalanced - the back is heavier than the front. This issue is exacerbated if the battery is also located at the back and the bike doesn't have front suspension.

**缺点:** 你需要一个特别设计的后轮技巧来拆卸后轮运输自行车可能不平衡-后面比前面重。如果电池也位于后面, 而自行车没有前悬架, 这个问题就会加剧。



## Voltage and Power 电压和功率

It's easy to get lost in these numbers since everyone will try to sell you on "more performance." But you really need to assess your riding to figure out what you need. First of all, neither of these numbers will necessarily get you faster speed. Top speed is generally capped at 20 or 28 mph depending on the system and this is a government regulation. Lower power motors are perfectly suitable for relatively flat, around town riding and you'll still be able to hit 20 mph or more! More power is best if you're towing a load or are a larger rider. It will also accelerate a little faster and will go faster uphill. A higher voltage motor will allow you to use fewer cells in your battery because the current draw will be less for the same power. As such, it won't run as hot either, which will minimize potential overheating problems. If you don't need to sustain maximum power though.

它很容易迷失在这些数字, 因为每个人都会试图出售你的“更多的性能”。但你真的需要评估你的骑乘情况来弄清楚你需要什么。首先, 这两个数字都不一定会让你获得更快的速度。根据系统的不同, 最高速度通常被限制在20或28英里每小时, 这是政府的规定。低功率的马达非常适合相对平坦, 在城镇骑, 你仍然可以达到20英里每小时或更多! 如果你拖着或更大的骑手, 更多的动力是最好的。

它也会加速, 上坡也会更快。一个更高电压的电机将允许你在电池中使用更少的电池, 因为相同的功率的电流将更少。因此, 它也不会那么热, 这将把潜在的过热问题降到最低。如果你不需要维持最大的功率。)



# Geared Hub Motor

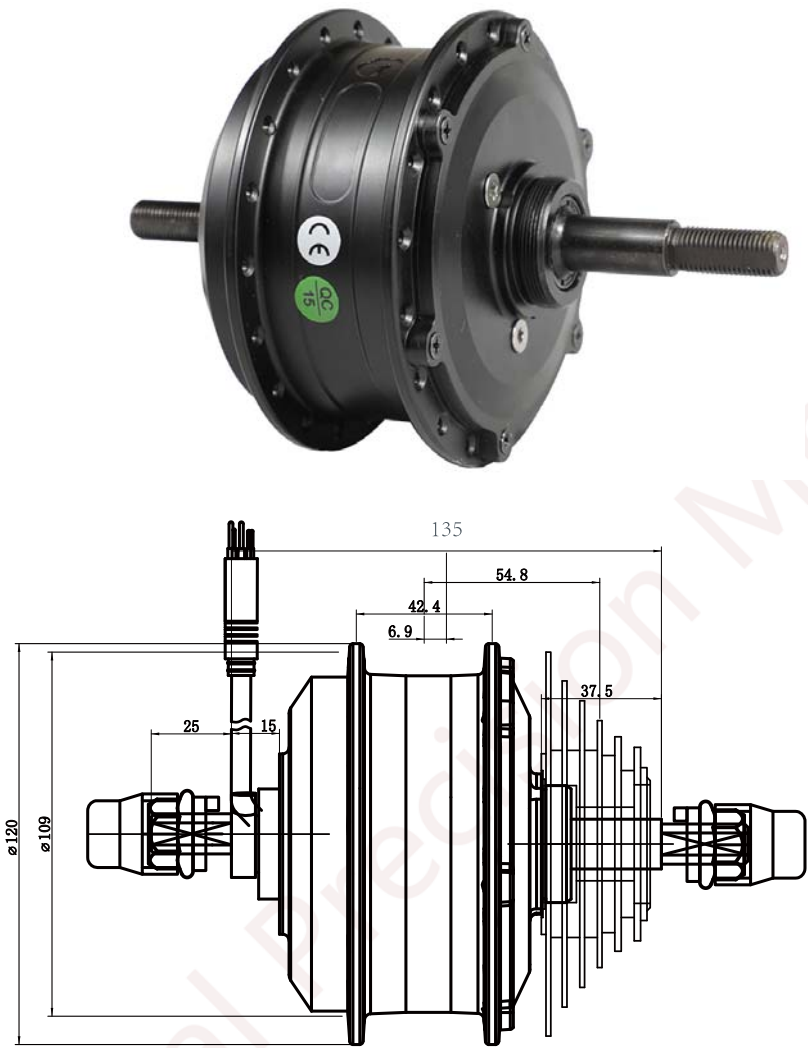
A geared hub motor provides a good deal of low-end torque. When you're in dirt, sand, or climbing up a fire road, having that extra oomph is helpful for pushing through trickier starts. The torque, combined with the motor's general durability, makes it an ideal option for bikes designed for both off-road and concrete jungles.

一个齿轮轮毂电机提供了大量的低端扭矩。当你在泥土、沙子或爬上火路时，拥有这种额外的魅力有助于推动更棘手的开始。扭矩，结合上电机的一般耐用性，使其成为为越野和混凝土丛林设计的自行车的理想选择

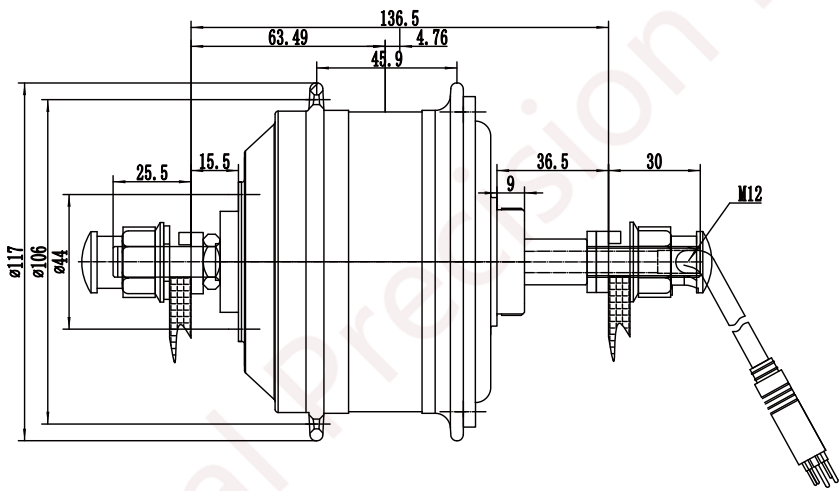




# Rear Motor

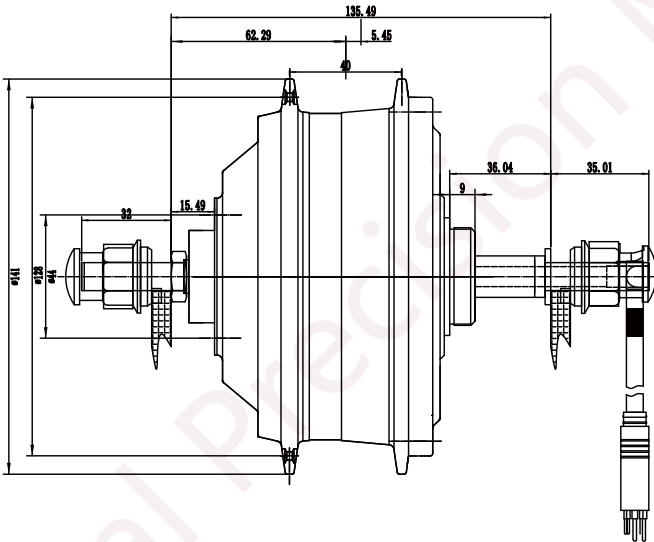


Position 安装位置	Rear	Dropout(mm)开档	135
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	250	Efficiency (%) 效率	≥82
Weight (Kg) 重量	3	Color颜色	Black
Reduction Ratio减速比	1: 13	Cable Location出线方式	Shaft center left
Max Torque (N.m) 最大扭矩	40	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification 辐条	36H*12G/13G	Drive and Freewheel飞轮	6-7S

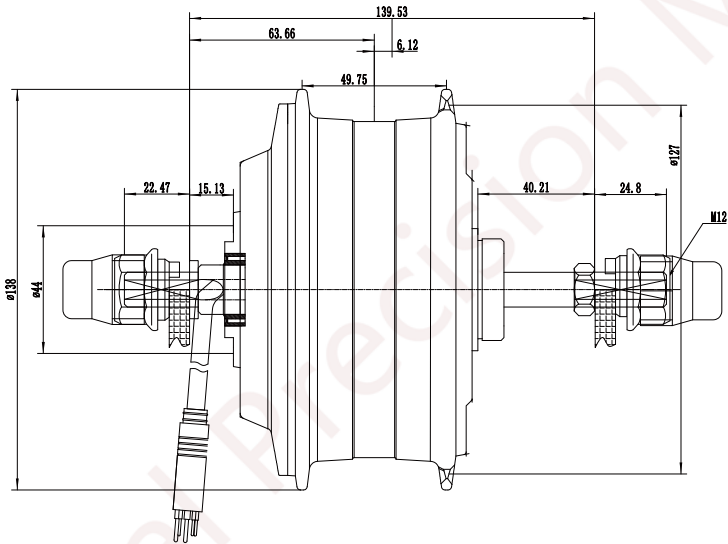


Position 安装位置	Rear	Dropout(mm)开档	120/135
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48	Operation Temperature ( C )	-20-45
Rated Power ( W ) 额定功率	180-250	Efficiency ( % ) 效率	≥82
Weight (Kg) 重量	1.9	Color颜色	Black/Silver
Reduction Ratio减速比	1:4.35	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	35	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification辐条	36H*12G/13G	Drive and Freewheel飞轮	6s-7s

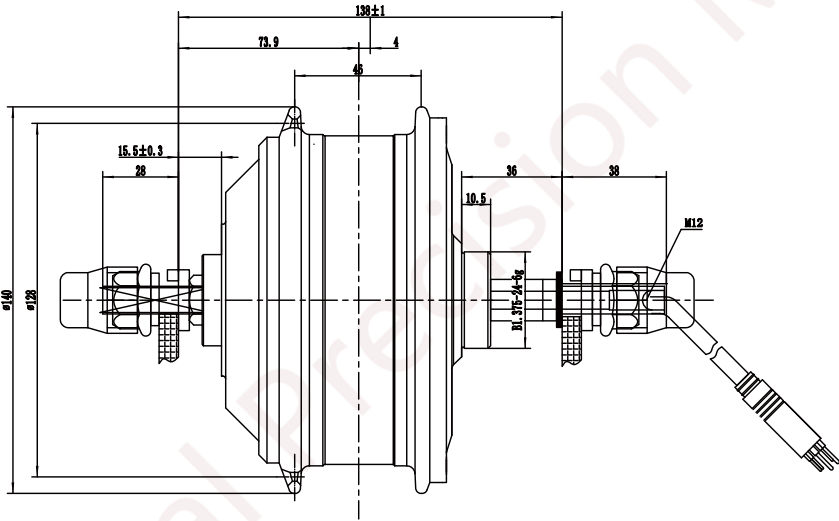




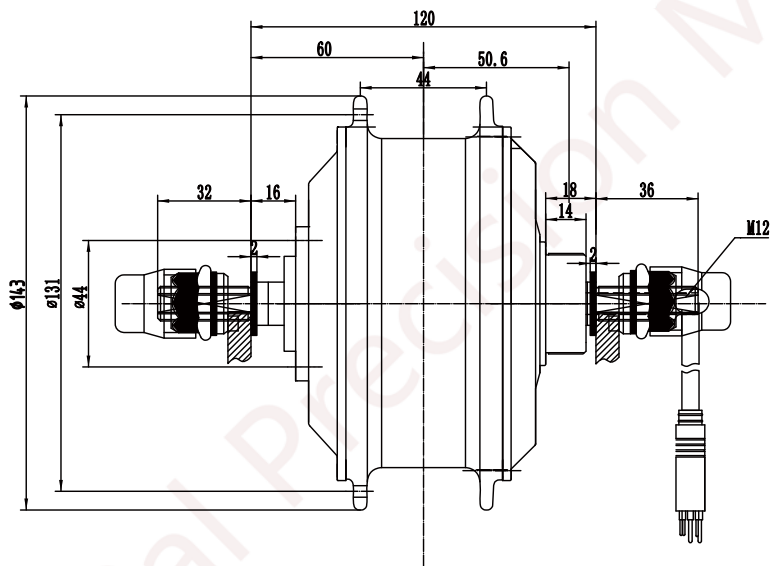
Position 安装位置	Rear	Dropout(mm)开档	136
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	180-350	Efficiency ( % ) 效率	≥ 82
Weight (Kg) 重量	3	Color颜色	Black/Shining/Silver
Reduction Ratio减速比	1:5.2	Cable Location出线方式	Shaft center left
Max Torque (N.m) 最大扭矩	40	Noise Grade (dB) 噪音等级	≤ 55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification辐条	36H*12G/13G	Drive and Freewheel 飞轮	6-7S



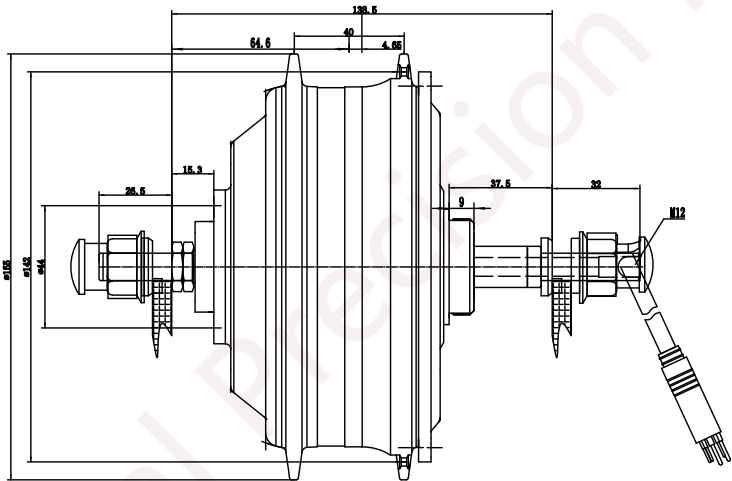
Position 安装位置	Rear	Dropout(mm)开档	136
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	36/48	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	250/350	Efficiency ( % ) 效率	≥82
Weight (Kg) 重量	3	Color颜色	Black/Shining/Silver
Reduction Ratio减速比	1: 5.2	Cable Location出线方式	Shaft center left
Max Torque (N.m) 最大扭矩	40	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification 辐条	36H*12G/13G	Drive and Freewheel飞轮	6-7S



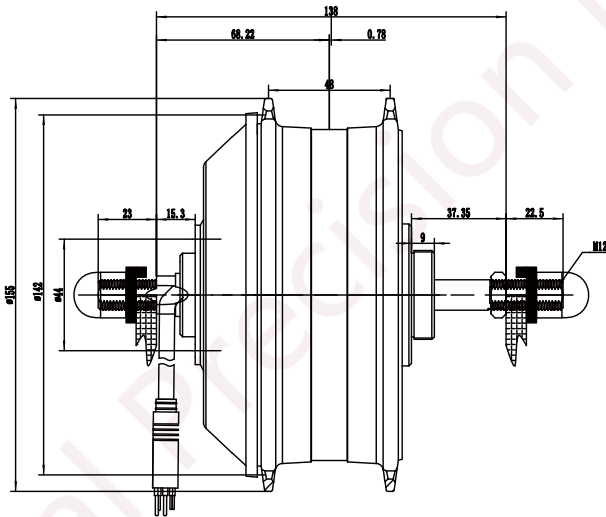
Position 安装位置	Rear	Dropout(mm)开档	137
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48	Operation Temperature ( °C )	-20-45
Rated Power (W) 额定功率	180-350	Efficiency (%) 效率	≥82
Weight (Kg) 重量	3	Color颜色	Shining/Black/Silver
Reduction Ratio减速比	1:4.4	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	35	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification辐条	36H*12G/13G	Drive and Freewheel 飞轮	6-7s



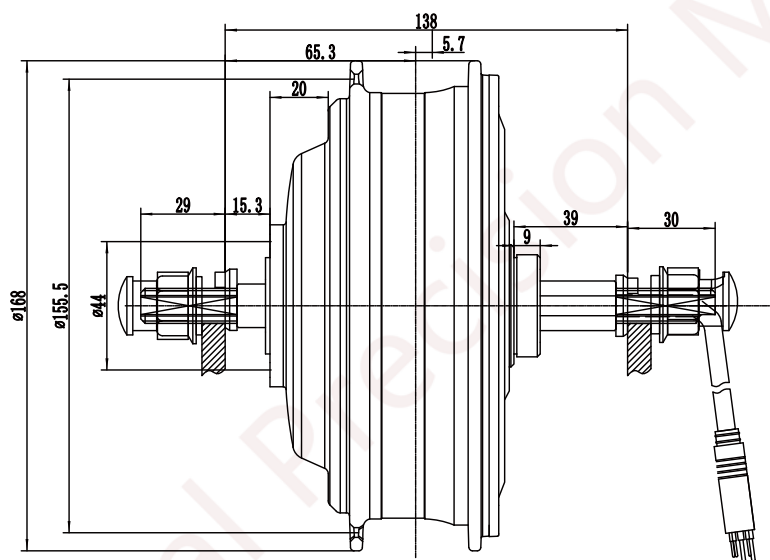
Position 安装位置	Rear	Dropout(mm)开档	124/126/130
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48	Operation Temperature (℃)	-20-45
Rated Power (W) 额定功率	180-350	Efficiency (%) 效率	≥82
Weight (Kg) 重量	3	Color颜色	Shining/Black/Silver
Reduction Ratio减速比	1:4.4	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	35	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification辐条	36H*12G/13G	Drive and Freewheel 飞轮	1s



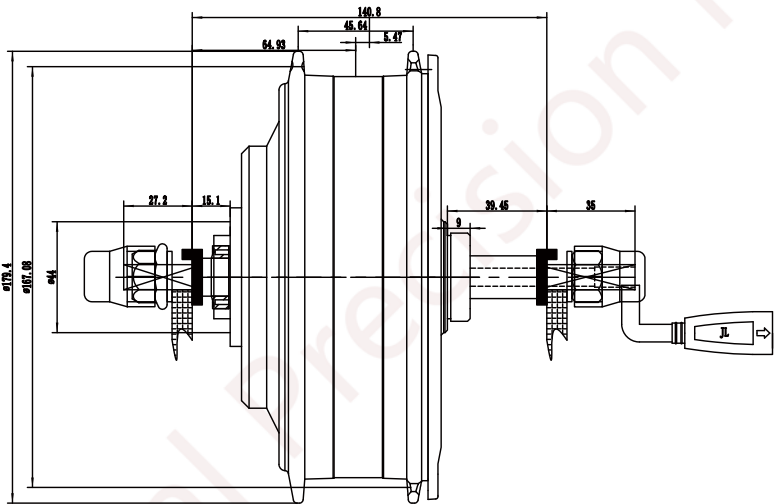
Position 安装位置	Rear	Dropout(mm)开档	138
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48/60	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	250-500	Efficiency ( % ) 效率	≥82
Weight (Kg) 重量	3	Color颜色	Black/Silver/Shining
Reduction Ratio减速比	1:5.8	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	40	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification 辐条	36H*12G/13G	Drive and Freewheel飞轮	6-7s



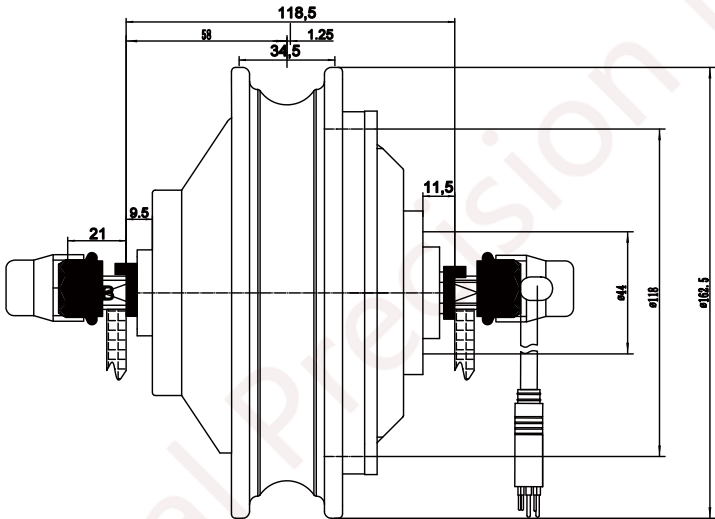
Position 安装位置	Rear	Dropout(mm)开档	138
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48/60	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	250-500	Efficiency (%) 效率	≥82
Weight (Kg) 重量	3.5	Color颜色	Shining/Black/Silver
Reduction Ratio减速比	1:5.8	Cable Location出线方式	Shaft center left
Max Torque (N.m) 最大扭矩	40	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification 辐条	36H*12G/13G	Drive and Freewheel飞轮	6-7S



Position 安装位置	Rear	Dropout(mm)开档	138
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48/60	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	250-500	Efficiency ( % ) 效率	≥82
Weight (Kg) 重量	3.5	Color颜色	Black/Silver/Shining
Reduction Ratio减速比	1:5.2	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	60	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25-45	Salt spray Test Standard (h) 盐雾测试	24/96
Drive and Freewheel飞轮	36H*12G/13G	Drive and Freewheel飞轮	7-8s



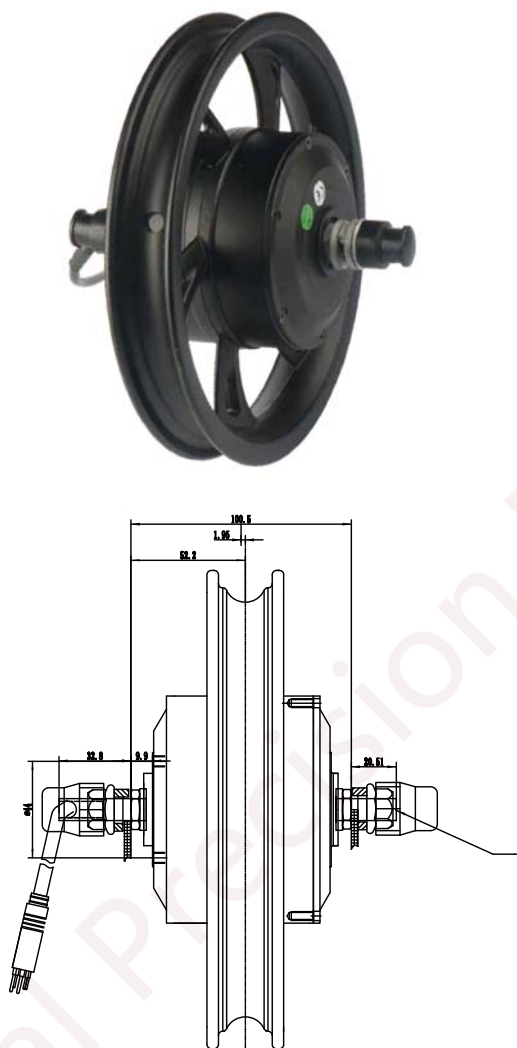
Position 安装位置	Rear	Dropout(mm)开档	140
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	800-1000	Efficiency ( % ) 效率	≥ 82
Weight (Kg) 重量	4	Color颜色	Black/Silver/Shining
Reduction Ratio减速比	1:5.83	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	95	Noise Grade (dB) 噪音等级	≤ 55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	45	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification 辐条	36H*12G/13G	Drive and Freewheel飞轮	6-7s



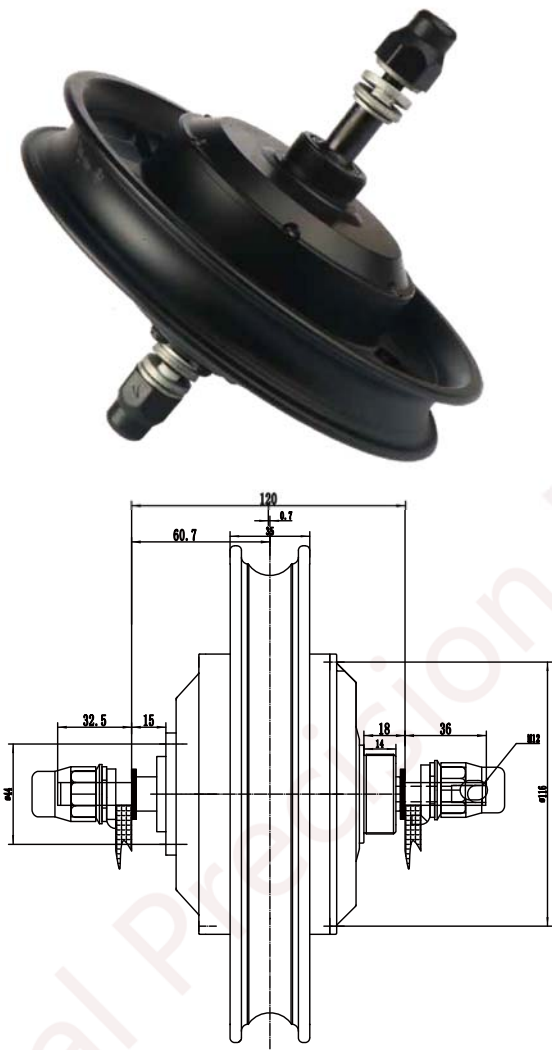
Position 安装位置	Rear	Dropout(mm)开档	119
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	36/48	Operation Temperature (C)	-20-45
Rated Power (W) 额定功率	200-350	Efficiency (%) 效率	≥82
Weight (Kg) 重量	3.5	Color颜色	Black/Silver
Reduction Ratio减速比	1:4.4	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	30	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	10	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
Drive and Freewheel 飞轮	/		

## 12 inch gear motor

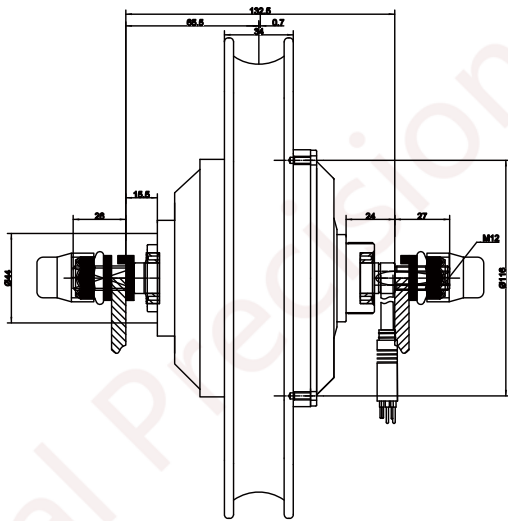
# PHUM-12IN G350R



Position 安装位置	Rear	Dropout(mm)开档	100
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48	Operation Temperature ( ℃ )	-20-45
Rated Power ( W ) 额定功率	180-350	Efficiency ( % ) 效率	≥82
Weight (Kg) 重量	3.2	Color颜色	Shining/Black/Silver
Reduction Ratio减速比	1:4.35	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	24	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	25-30	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25km/h	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification 辐条			



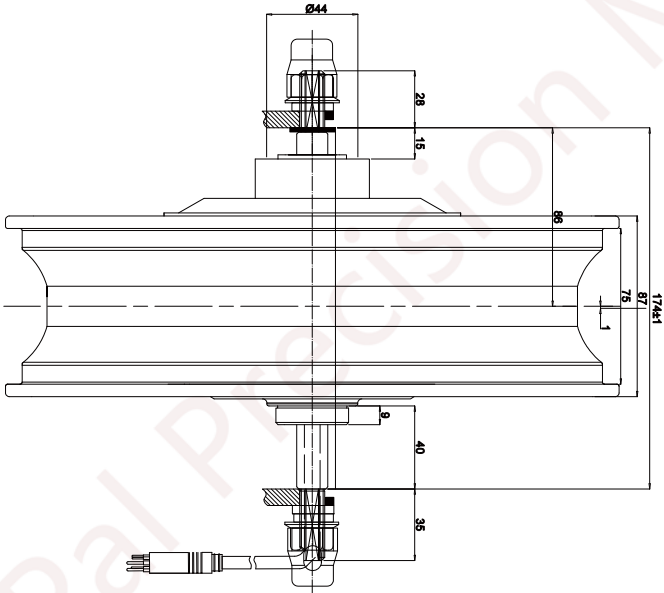
Position 安装位置	Rear	Dropout(mm)开档	100-140
Construction电机结构	Rear/Front	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48	Operation Temperature (C )	-20-45
Rated Power (W) 额定功率	180-350	Efficiency (%) 效率	≥82
Weight (Kg) 重量	3.2	Color颜色	Shining/Black/Silver
Reduction Ratio减速比	1:4.4	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	30	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	12	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25-30	Salt spray Test Standard (h) 盐雾测试	24/96
Drive and Freewheel 飞轮	1s		



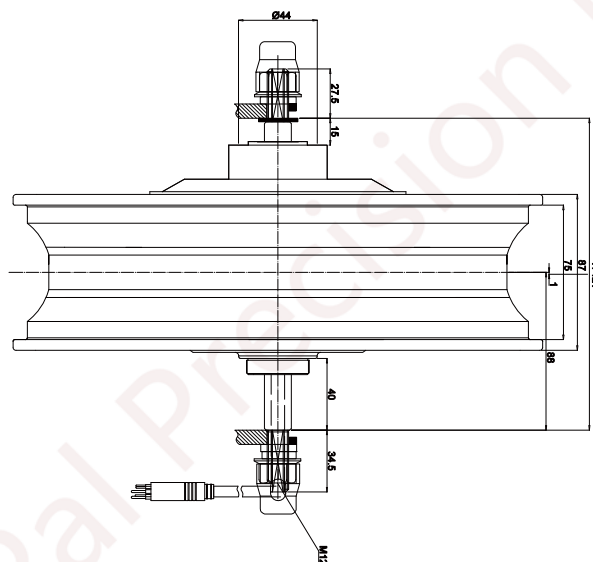
Position 安装位置	Rear	Dropout(mm)开档	120-140
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc/Expansile brake
Rated Voltage (V) 额定电压	24/36/48	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	180-350	Efficiency ( % ) 效率	≥82
Weight (Kg) 重量	3.2	Color颜色	Shining/Black/Silver
Reduction Ratio减速比	1:4.4	Cable Location出线方式	Shaft Center Right
Max Torque (N.m) 最大扭矩	30	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	14	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25-30	Salt spray Test Standard (h) 盐雾测试	24/96
Drive and Freewheel飞轮	1s		

500w 16”gear fat tire wheel motor

PHUM-16IN GFT500R



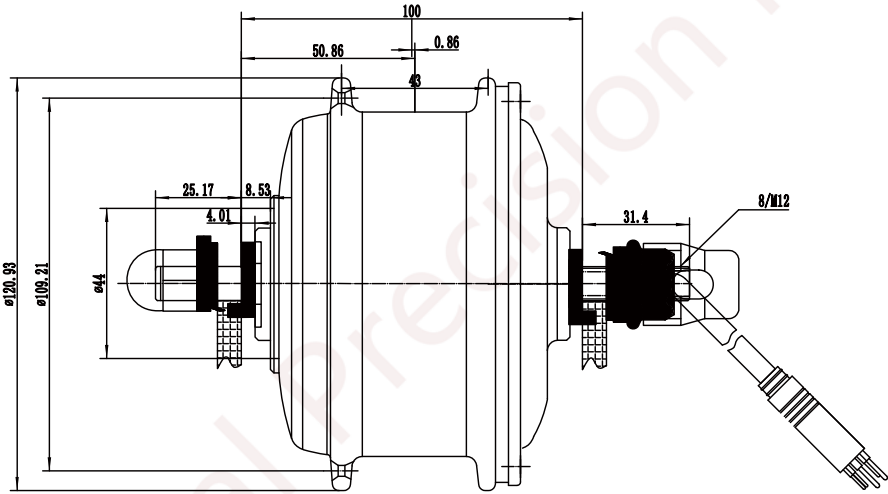
Position 安装位置	Rear	Dropout(mm)开档	174
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48/60	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	250-750	Efficiency ( % ) 效率	≥ 82
Weight (Kg) 重量	5	Color颜色	Black/Silver/Shining
Reduction Ratio减速比	1:5/1:5.2	Cable Location 出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	50	Noise Grade (dB) 噪音等级	≤ 55db
Wheel Diameter (Inch) 轮径	16	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
		Drive and Freewheel飞轮	6-7s



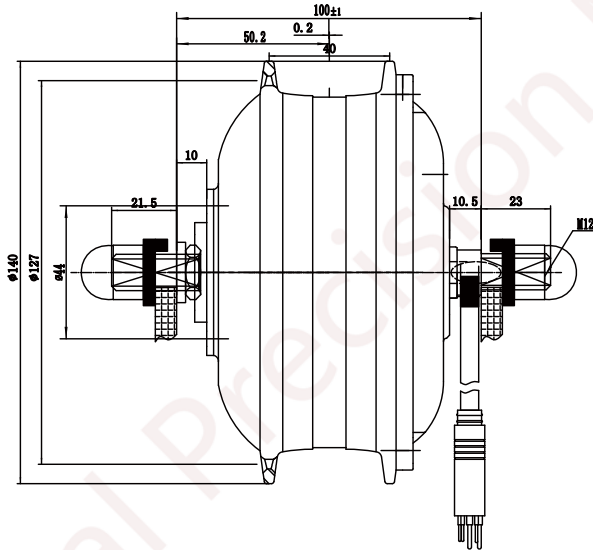
Position 安装位置	Rear	Dropout(mm)开档	174
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48/60	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	250-750	Efficiency ( % ) 效率	≥ 82
Weight (Kg) 重量	5	Color颜色	Black/Silver/Shining
Reduction Ratio减速比	1:5/1:5.2	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	50	Noise Grade (dB) 噪音等级	≤ 55db
Wheel Diameter (Inch) 轮径	20	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification 辐条	36H*12G/13G	Drive and Freewheel飞轮	6-7s



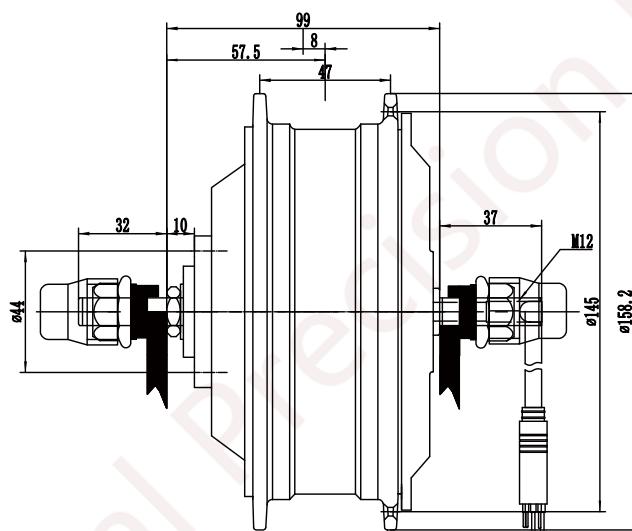
# Front Motor



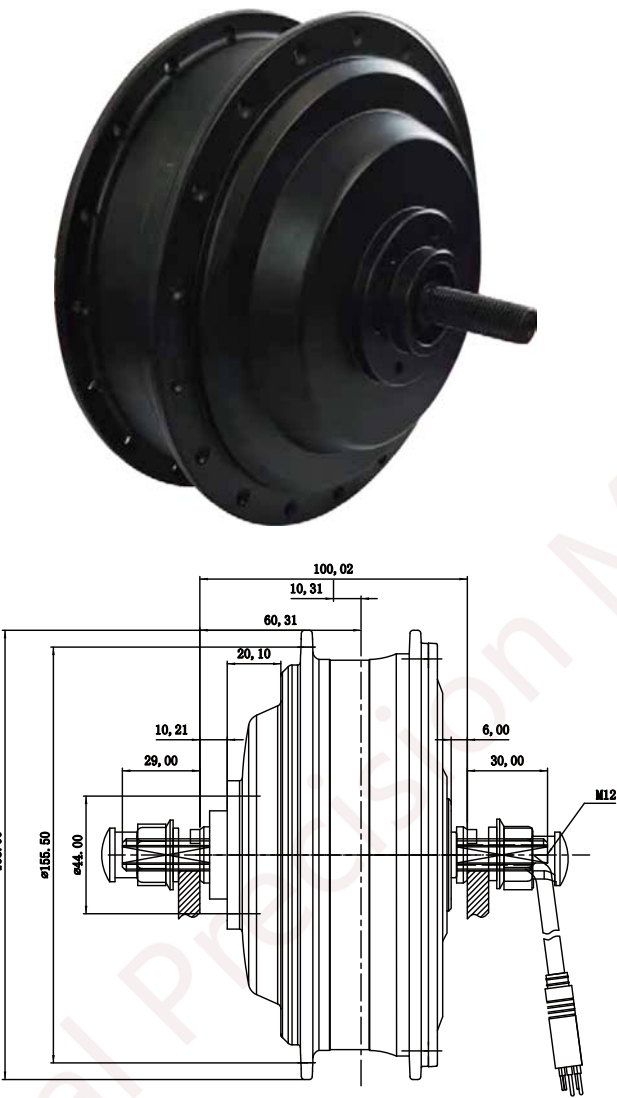
Position 安装位置	Front	Dropout(mm)开档	100
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48	Operation Temperature (℃)	-20-45
Rated Power (W) 额定功率	180-350	Efficiency (%) 效率	≥82
Weight (Kg) 重量	2.8	Color颜色	Black/Shining/Silver
Reduction Ratio减速比	1:4.4	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	35	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification辐条	36H*12G/13G	Drive and Freewheel飞轮	/



Position 安装位置	Front	Dropout(mm)开档	100
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48	Operation Temperature (℃)	-20-45
Rated Power (W) 额定功率	180-350	Efficiency (%) 效率	≥82
Weight (Kg) 重量	2.8	Color颜色	Shining/Black/Silver
Reduction Ratio减速比	1:5.2	Cable Location出线方式	Shaft side
Max Torque (N.m) 最大扭矩	40	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification辐条	36H*12G/13G		



Position 安装位置	Front	Dropout(mm)开档	100
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48/60	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	250-500	Efficiency ( % ) 效率	≥ 82
Weight (Kg) 重量	3	Color颜色	Black/Silver/Shining
Reduction Ratio减速比	1:5/1:5.2	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	40	Noise Grade (dB) 噪音等级	≤ 55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification 辐条	36H*12G/13G	Drive and Freewheel飞轮	/



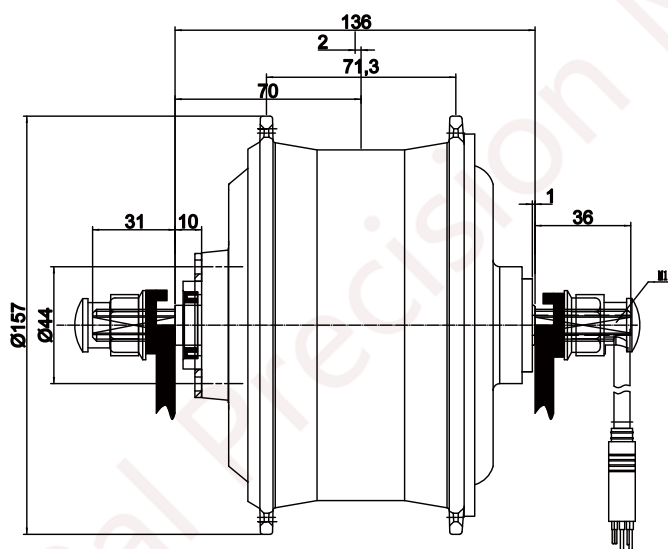
Position 安装位置	Front	Dropout(mm)开档	100
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	36/48	Operation Temperature (℃)	-20-45
Rated Power (W) 额定功率	500	Efficiency (%) 效率	≥82
Weight (Kg) 重量	3.5	Color颜色	Black/Silver/Shining
Reduction Ratio减速比	1:5.2	Cabling Route出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	60	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25-45	Salt spray Test Standard (h) 盐雾测试	24/96
Drive and Freewheel飞轮	36H*12G/13G	Drive and Freewheel飞轮	无

# ► Freewheel Motor

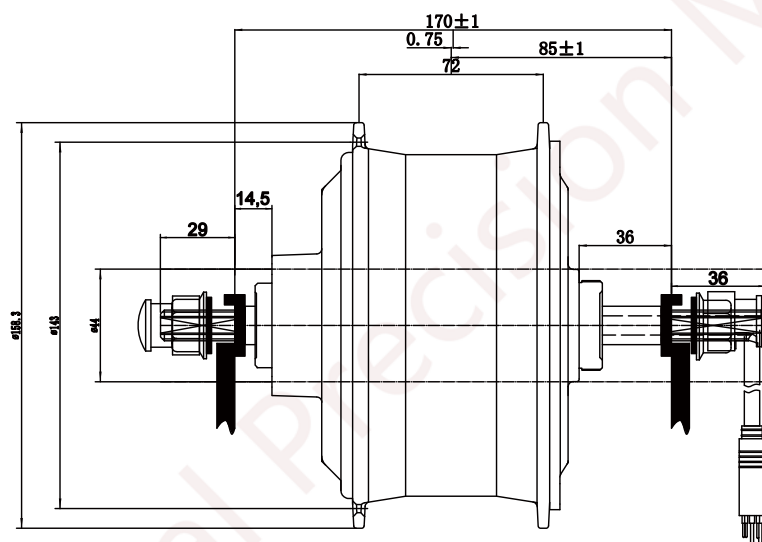
Older bikes may have a large external thread machined into the hub. The cogs and ratcheting body assembly, called a “freewheel,” threads onto the hub. The ratcheting mechanism comes off with the cogs when the freewheel unthreads for removal.

较旧的自行车可能在轮毂中加工有较大的外螺纹。齿轮和棘轮体组件，称为“飞轮”，螺纹连接到轮毂上。当飞轮松开以进行拆卸时，棘轮机构与齿轮一起脱落。





Position 安装位置	Rear	Dropout(mm)开档	136
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage（V）额定电压	24/36/48/60	Operation Temperature（℃）	-20-45
Rated Power（W）额定功率	250-750	Efficiency（%）效率	≥82
Weight（Kg）重量	4.0-4.5	Color颜色	Shining/Black/Silver
Reduction Ratio减速比	1:5/1:5.2	Cable Location出线方式	Shaft center right
Max Torque（N.m）最大扭矩	40	Noise Grade（dB）噪音等级	≤55db
Wheel Diameter（Inch）轮径	16-28	IP Grade 防水等级	IP65
Rated Speed（km/h）额定速度	25-42	Salt spray Test Standard（h）盐雾测试	24/96
Spoke Specification辐条	36H*12G/13G	Drive and Freewheel 飞轮	6-7s



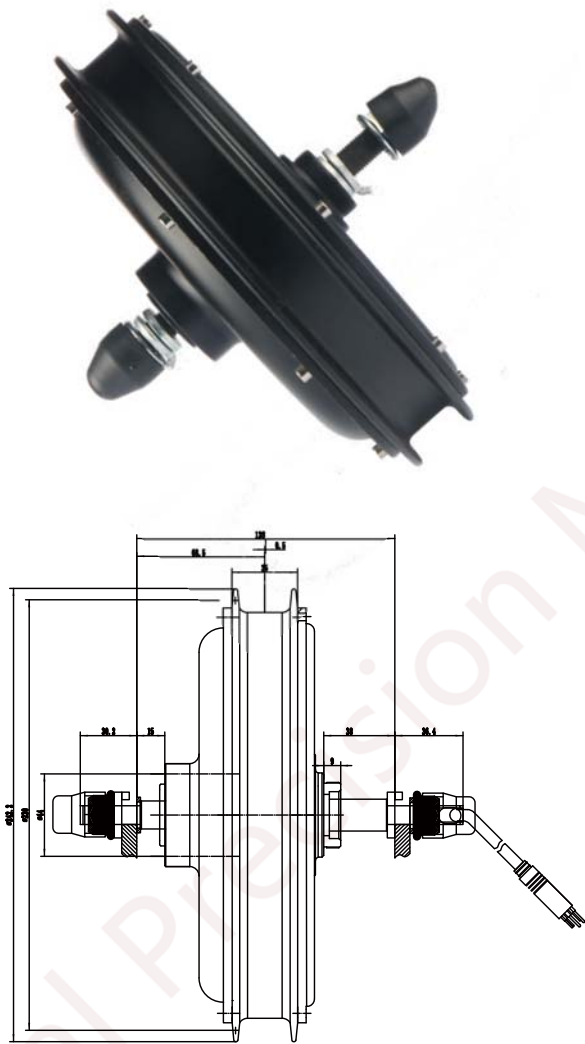
Position 安装位置	Rear	Dropout(mm)开档	170-195
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48/60	Operation Temperature (℃)	-20-45
Rated Power (W) 额定功率	250-750	Efficiency (%) 效率	≥82
Weight (Kg) 重量	4.0-4.5	Color颜色	Shining/Black/Silver
Reduction Ratio减速比	350w1:5/500w1:5.2/750w1:5.8	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	40	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25-42	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification辐条	36H*12G/13G	Drive and Freewheel 飞轮	6-7s

# Gearless Motor

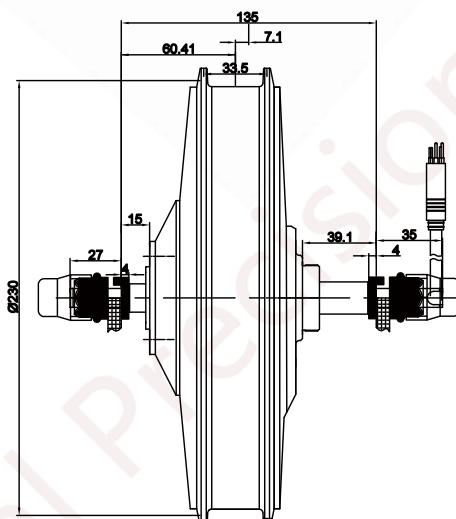
In a direct drive hub motor, the axle that passes through the center of the motor is actually the axle of the motor itself, with the copper windings fixed to the axle. This whole axle assembly is called the “stator”. The magnets are mounted to the outer shell of the hub motor. When electricity is applied to the stator a magnetic field is induced that causes the magnets to move. This in turn makes the whole shell of the motor turn and propels the e-bike forward

在直接驱动轮毂电机中，通过电机中心的轴实际上是电机本身的轴，铜绕组固定在轴上。这整个车轴组件被称为“定子”。磁铁被安装在轮毂电机的外壳上。当定子通电时，会产生磁场，导致磁铁移动。这反过来使整个电机的外壳转向，并推动电动自行车前进。

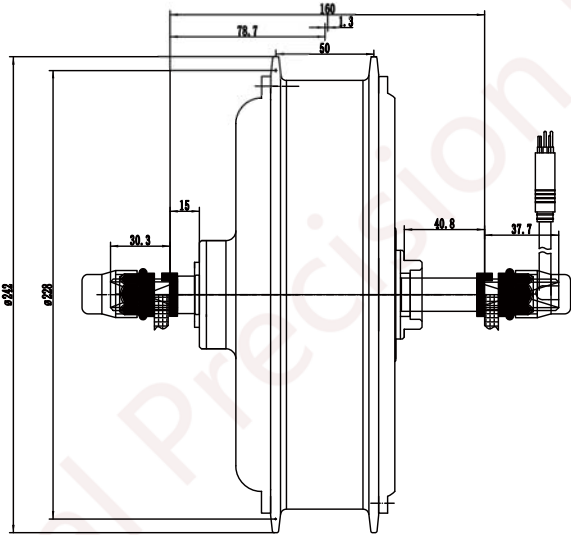




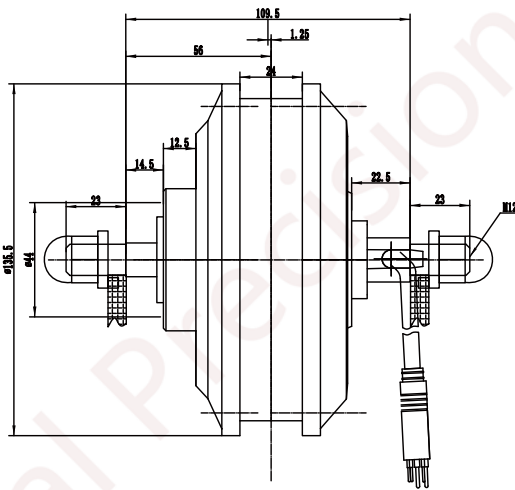
Position 安装位置	Rear	Dropout(mm)开档	135
Construction电机结构	Gearless	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	36/48/60/72	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	350-1000	Efficiency ( % ) 效率	≥82
Weight (Kg) 重量	7	Color颜色	Black/Silver
Reduction Ratio减速比	/	Cable Location出线方式	Shaft center left/right
Max Torque (N.m) 最大扭矩	45-55	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	20-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25-35	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification 辐条	36H*12G/13G	Drive and Freewheel飞轮	6-8s



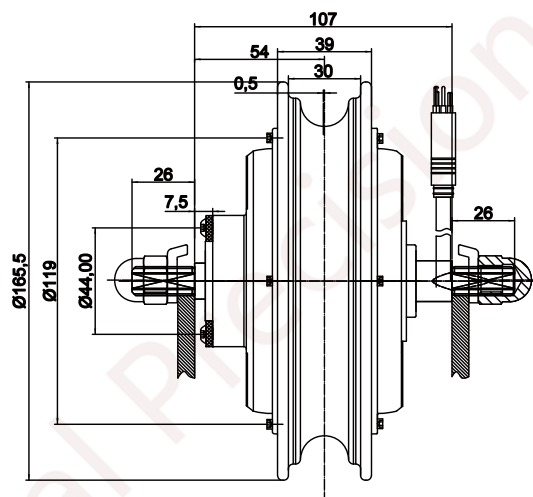
Position 安装位置	Rear	Dropout(mm)开档	135
Construction电机结构	Gearless	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	36/48/60/72	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	350-1000	Efficiency (%) 效率	≥82
Weight (Kg) 重量	7	Color颜色	Black/Silver
Reduction Ratio减速比	/	Cable Location出线方式	Shaft center left/right
Max Torque (N.m) 最大扭矩	45-55	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	20-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25-42	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification 辐条	36H*12G/13G	Drive and Freewheel飞轮	9s



Position 安装位置	Rear	Dropout(mm)开档	160-170
Construction电机结构	Gearless	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	36/48/60/72	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	350-3000	Efficiency (%) 效率	≥82
Weight (Kg) 重量	7-11	Color颜色	Black/Silver
Reduction Ratio减速比	/	Cable Location出线方式	Shaft center right/left
Max Torque (N.m) 最大扭矩	80	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	20-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25-70	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification 辐条	36H*12G/13G	Drive and Freewheel飞轮	6-9s



Position 安装位置	Rear	Dropout(mm)开档	110
Construction电机结构	Gearless	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	36/48	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	200-350	Efficiency (%) 效率	≥ 82
Weight (Kg) 重量	3.5	Color颜色	Black/Silver
Max Torque (N.m) 最大扭矩	30	Cable Location出线方式	Shaft side
Wheel Diameter (Inch) 轮径	8	Noise Grade (dB) 噪音等级	≤ 55db
Rated Speed (km/h) 额定速度	25	IP Grade 防水等级	IP65
Spoke Specification 辐条	/	Salt spray Test Standard (h) 盐雾测试	24/96

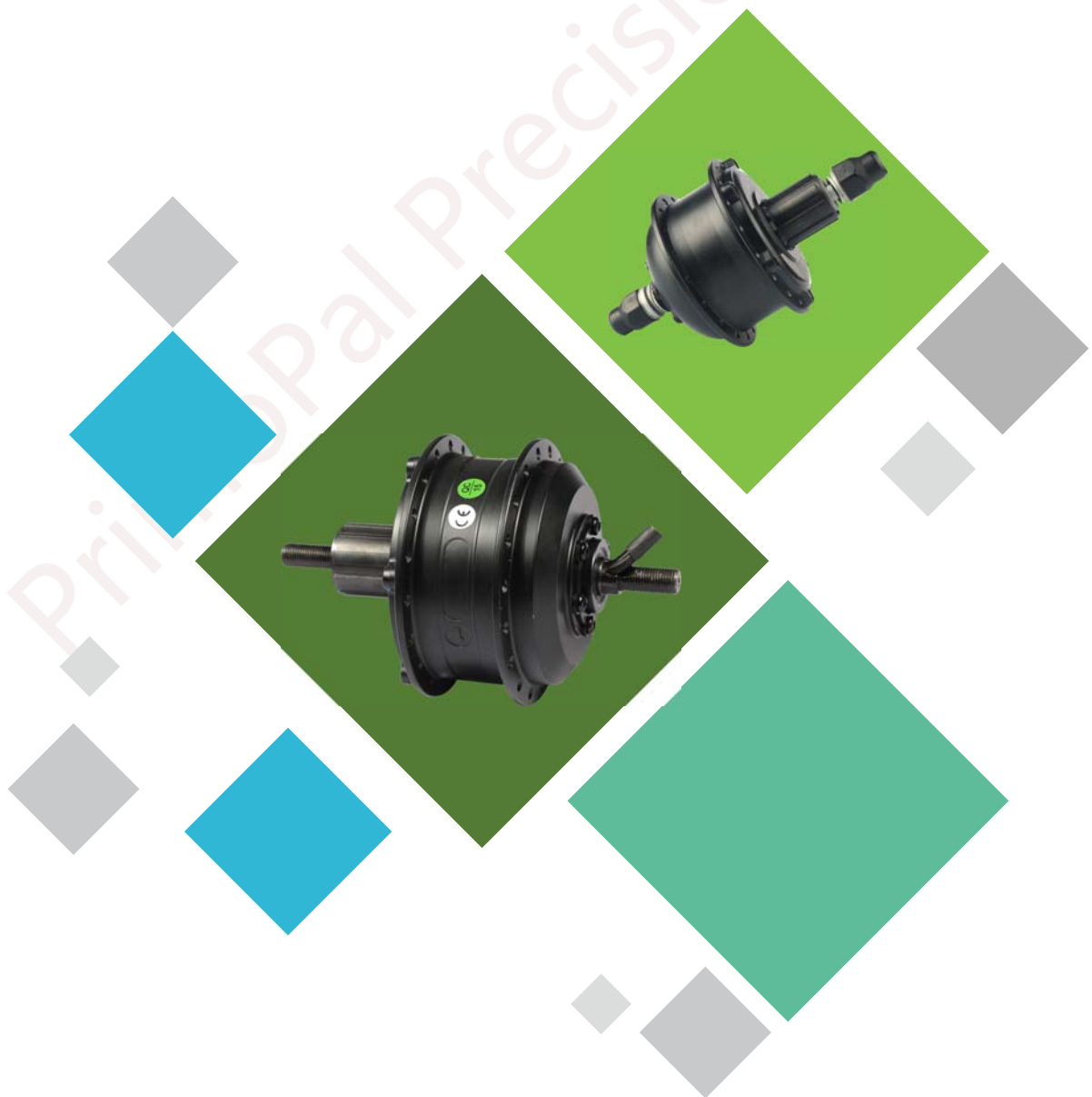


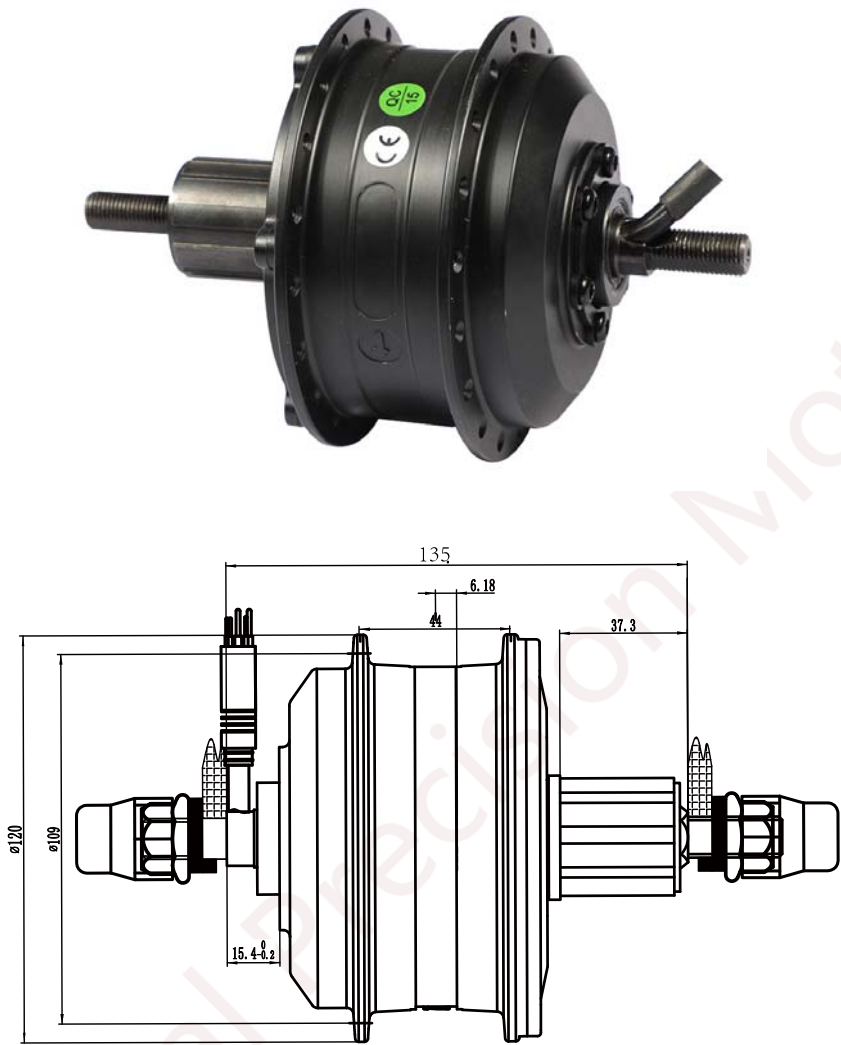
Position 安装位置	Rear	Dropout(mm)开档	110
Construction电机结构	Gearless	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	36/48	Operation Temperature ( °C )	-20-45
Rated Power (W) 额定功率	200-350	Efficiency (%) 效率	≥ 82
Weight (Kg) 重量	3.5	Color颜色	Black/Silver
Max Torque (N.m) 最大扭矩	30	Cable Location出线方式	Shaft center right
Wheel Diameter (Inch) 轮径	10	Noise Grade (dB) 噪音等级	≤ 55db
Rated Speed (km/h) 额定速度	25	IP Grade 防水等级	IP65
Spoke Specification 辐条	/	Salt spray Test Standard (h) 盐雾测试	24/96

# Cassette Motor

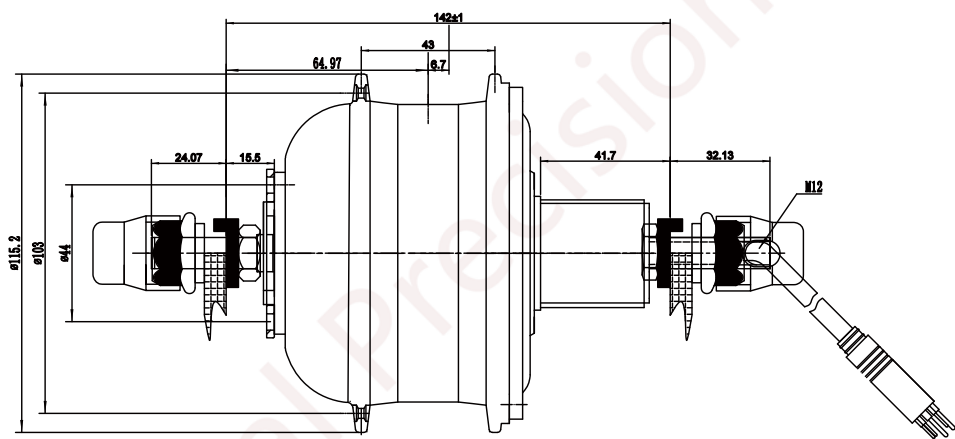
The rear cogs are attached to the hub in one of two ways. Newer bikes tend to use type hub called a “cassette hub.” which is a type of clutch mounted to the body of the hub. This cylindrical mechanism ratchets counter-clockwise for coasting, and locks clockwise for driving the bike when pedaled. The freehub body has a series of splines on the outer shell. “Cassette” sprockets slide over these splines. A lockring threads into the freehub and holds the sprockets, or cogs, in place. When the cogs are removed, the ratcheting freehub remains on the hub body. Most modern bicycles use the freehub system. See a typical cassette hub below.

后齿轮以两种方式之一连接到轮毂上。较新的自行车倾向于使用称为“盒式轮毂”的类型轮毂。这是一种安装在轮毂主体上的离合器。这种圆柱形机构逆时针旋转棘轮以进行滑行，并在踩下踏板时顺时针锁定以驱动自行车。花鼓体在外壳上有一系列花键。“盒式”链轮滑过这些花键。锁环拧入自由轮毂并将链轮或齿轮固定到位。卸下齿轮后，棘轮自由轮毂仍留在轮毂体上。大多数现代自行车使用 freehub 系统。请参阅下面的典型盒式集线器。

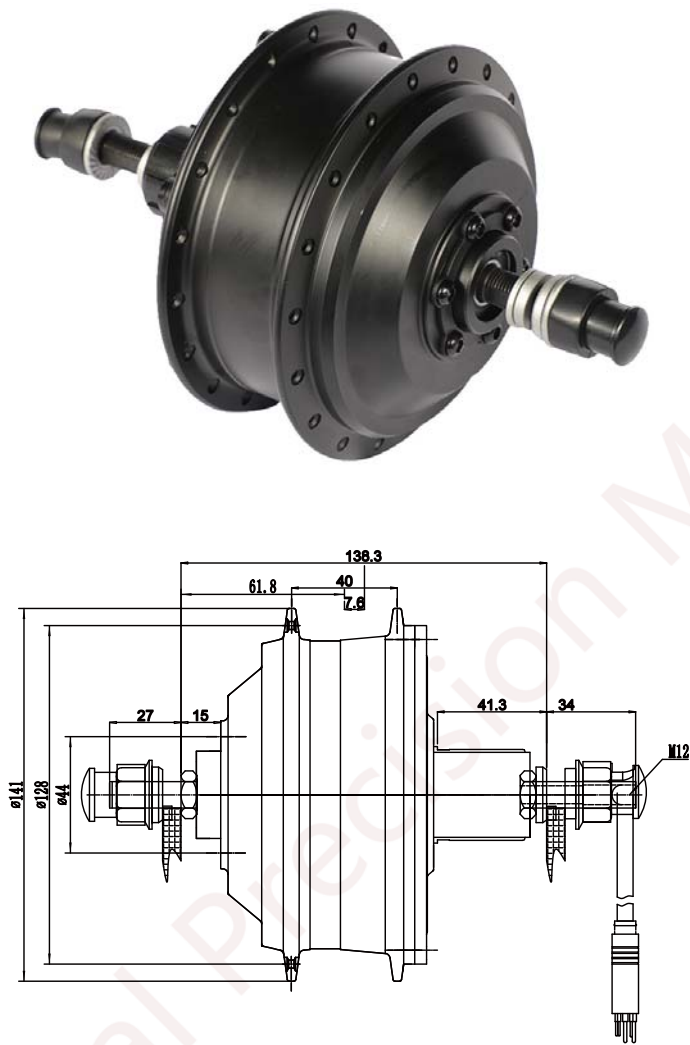




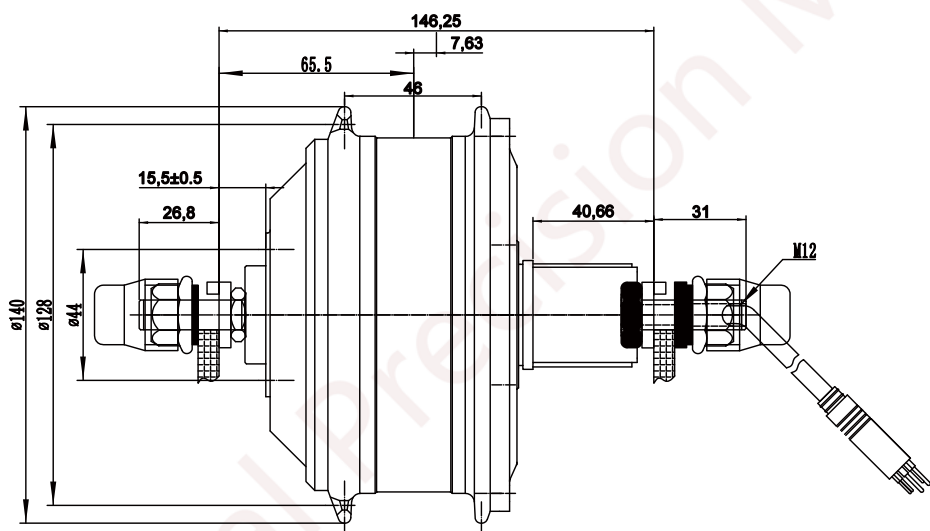
Position 安装位置	Rear	Dropout(mm)开档	135
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	250	Efficiency ( % ) 效率	≥82
Weight (Kg) 重量	3	Color颜色	Black/Shining/Silver
Reduction Ratio减速比	1: 13	Cable Location出线方式	Shaft center left
Max Torque (N.m) 最大扭矩	40	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification 辐条	36H*12G/13G	Drive and Freewheel飞轮	6-7S



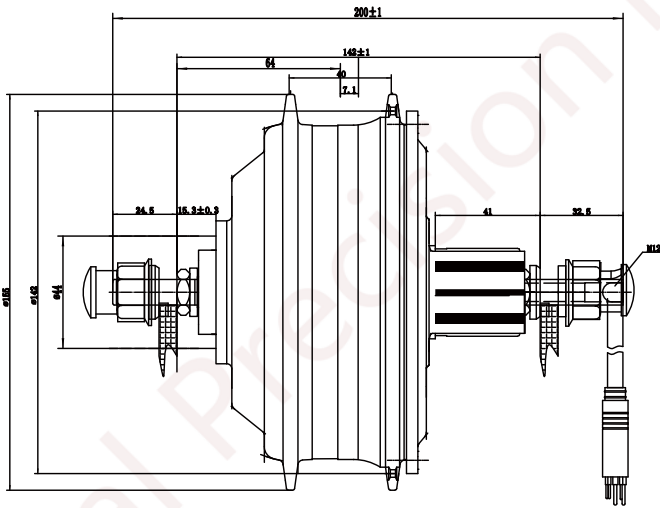
Position 安装位置	Rear	Dropout(mm)开档	142
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48	Operation Temperature (℃)	-20-45
Rated Power (W) 额定功率	180-320	Efficiency (%) 效率	≥82
Weight (Kg) 重量	2.2	Color颜色	Black/Silver/Shining
Reduction Ratio减速比	1:6.1	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	40	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification辐条	36H*12G/13G	Drive and Freewheel飞轮	6-7s



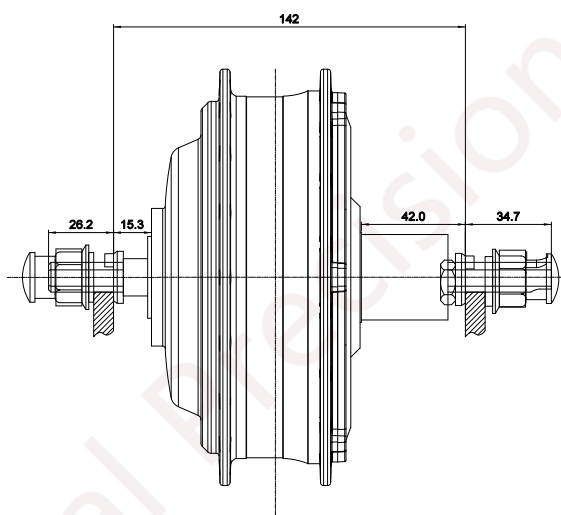
Position 安装位置	Rear	Dropout(mm)开档	138
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	180-350	Efficiency (%) 效率	≥82
Weight (Kg) 重量	3	Color颜色	Shining/Black/Silver
Reduction Ratio减速比	1:5.2	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	40	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	>25	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification辐条	36H*12G/13G	Drive and Freewheel 飞轮	9s



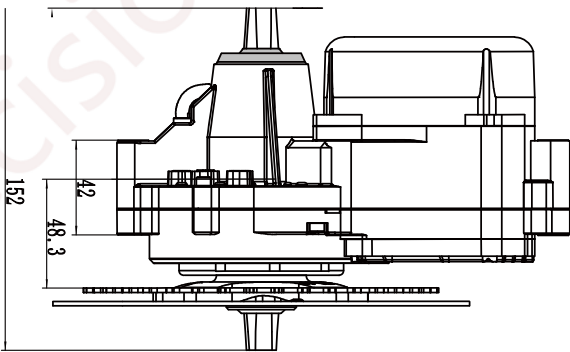
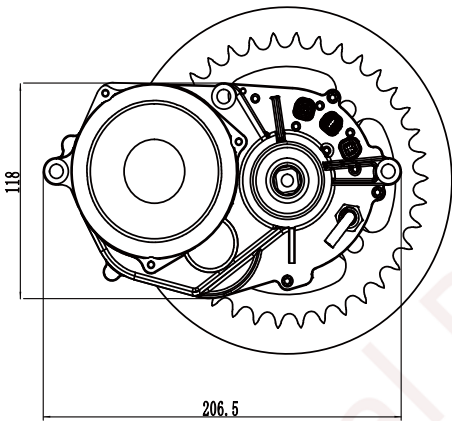
Position 安装位置	Rear	Dropout(mm)开档	145
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48	Operation Temperature (℃)	-20-45
Rated Power (W) 额定功率	180-350	Efficiency (%) 效率	≥82
Weight (Kg) 重量	3	Color颜色	Shining/Black/Silver
Reduction Ratio减速比	1:4.4	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	35	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification辐条	36H*12G/13G	Drive and Freewheel 飞轮	9s



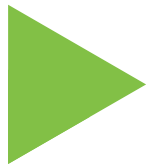
Position 安装位置	Rear	Dropout(mm)开档	142
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48/60	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	250-500	Efficiency ( % ) 效率	≥ 82
Weight (Kg) 重量	3	Color颜色	Black/Silver/Shining
Reduction Ratio减速比	1: 5.8	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	40	Noise Grade (dB) 噪音等级	≤ 55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
Spoke Specification 辐条	36H*12G/13G	Drive and Freewheel飞轮	8-9s



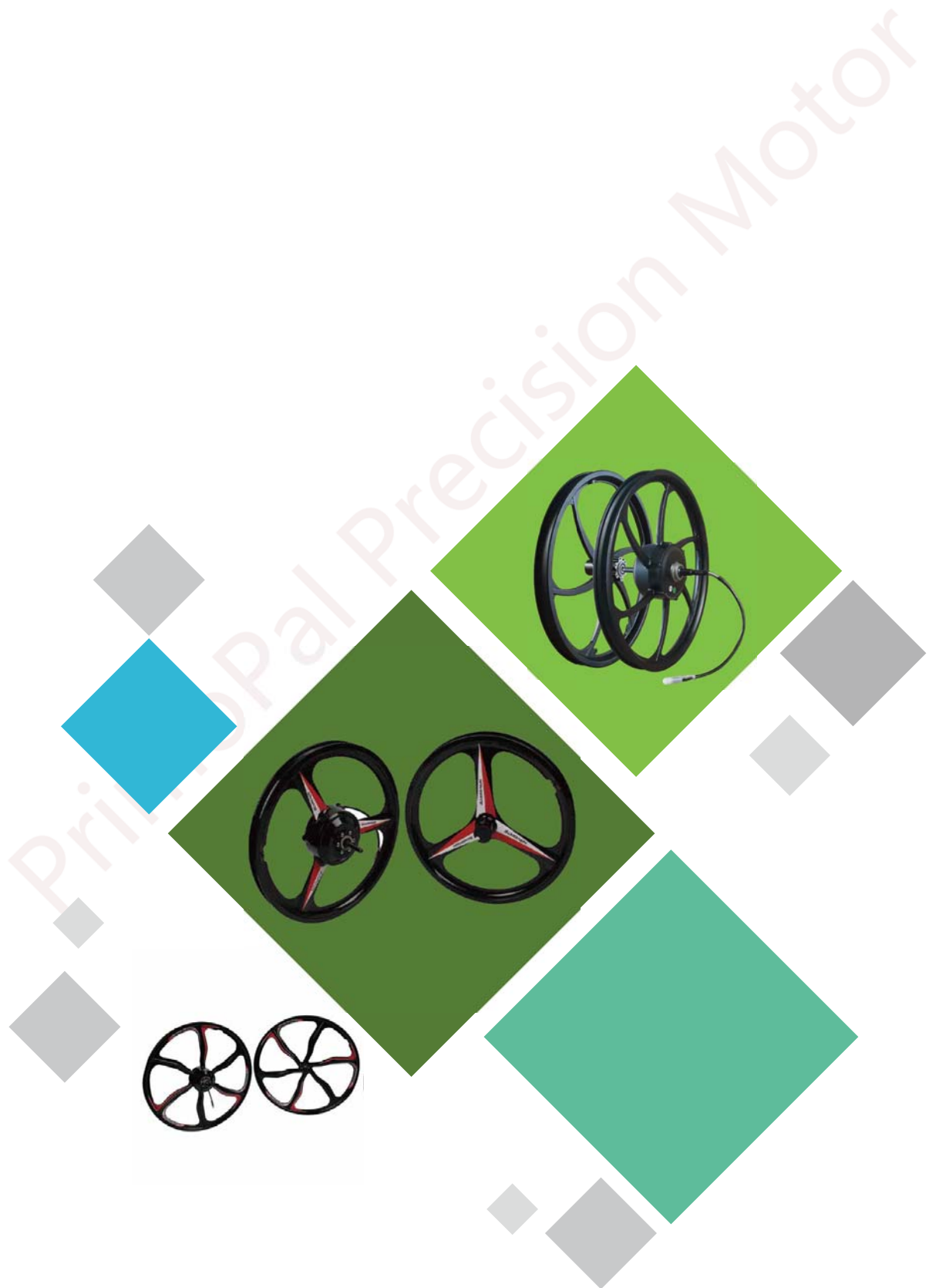
Position 安装位置	Rear	Dropout(mm)开档	142
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc brake
Rated Voltage (V) 额定电压	24/36/48/60	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	250-500	Efficiency ( % ) 效率	≥82
Weight (Kg) 重量	3.5	Color颜色	Black/Silver/Shining
Reduction Ratio减速比	1:5.2	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	60	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	16-28	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25-45	Salt spray Test Standard (h) 盐雾测试	24/96
Drive and Freewheel飞轮	36H*12G/13G	Drive and Freewheel飞轮	11s

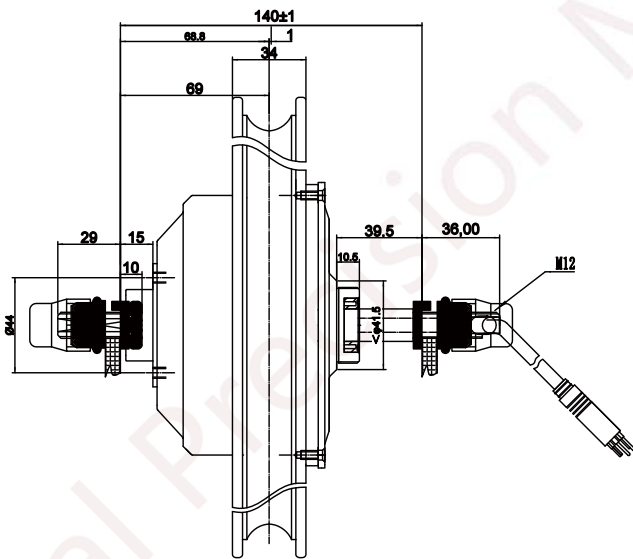


Rated Voltage (V) 额定电压	36/48	Temperature (°C)	100
Rated Power (W) 额定功率	350-500	Efficiency (%) 效率	≥82
Weight (Kg) 重量	3.6	Color颜色	Black
Reduction Ratio减速比	1:30	Noise Grade (dB) 噪音等级	≤55db
Max Torque (N.m) 最大扭矩	110	IP Grade 防水等级	IP65
Rated Speed (RPM) 额定转速	80-100	Salt spray Test Standard (h) 盐雾测试	24/96

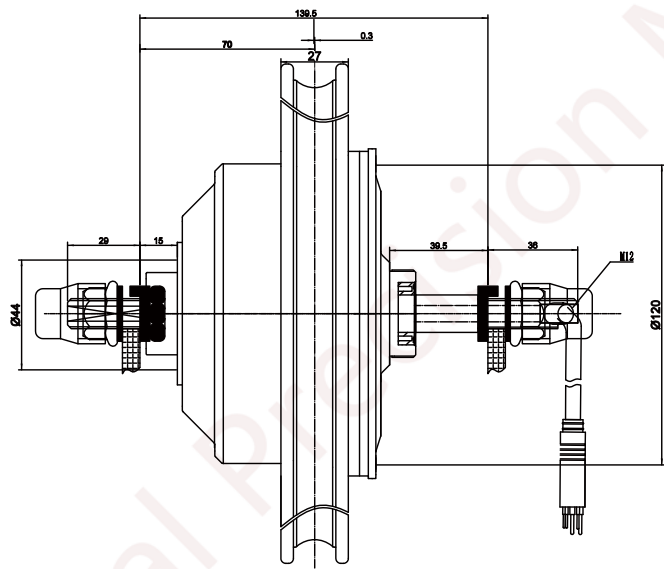


# Spoke Motor



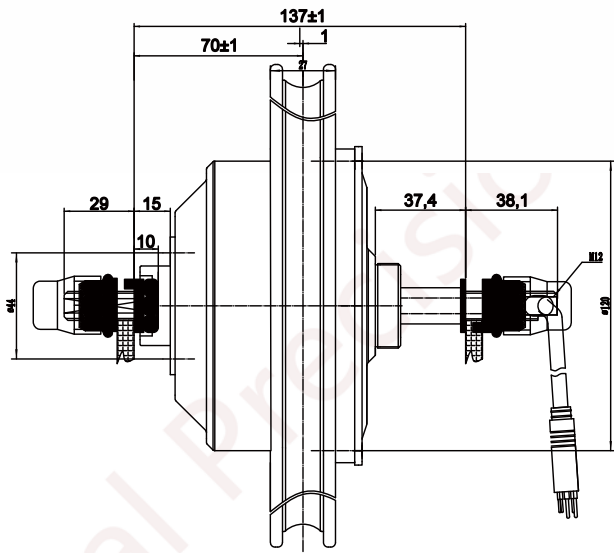


Position 安装位置	Rear	Dropout(mm)开档	140
Construction电机结构	Gear	Brake Type 刹车类型	Disc brake
Rated Voltage (V) 额定电压	24/36/48	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	180-350	Efficiency ( % ) 效率	≥82
Weight (Kg) 重量	3.6	Color颜色	Black/White
Reduction Ratio减速比	1:4.4	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	30	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	20	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
Drive and Freewheel飞轮	6-7s		







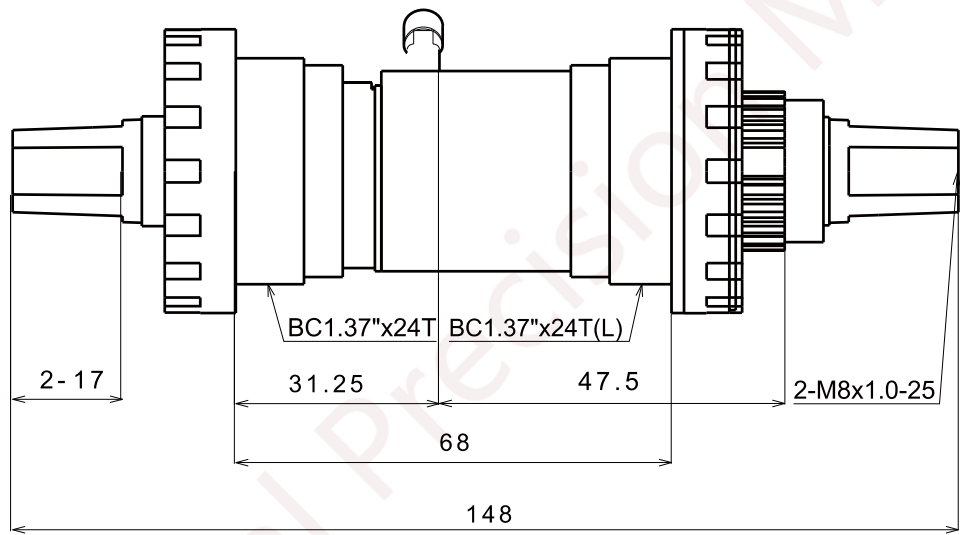
Position 安装位置	Rear	Dropout(mm)开档	120-140
Construction电机结构	Gear	Brake Type 刹车类型	V/Disc/Expansile brake
Rated Voltage (V) 额定电压	24/36/48	Operation Temperature ( C )	-20-45
Rated Power (W) 额定功率	180-350	Efficiency ( % ) 效率	≥82
Weight (Kg) 重量	3.2	Color颜色	Shining/Black/Silver
Reduction Ratio减速比	1:4.4	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	30	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	20	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25-30	Salt spray Test Standard (h) 盐雾测试	24/96
Drive and Freewheel飞轮	1s		

26 inch gear magnesium alloy motor PHUM-26IN GMA350



Position 安装位置	Rear	Dropout(mm)开档	140
Construction电机结构	Gear	Brake Type 刹车类型	Disc brake
Rated Voltage (V) 额定电压	24/36/48	Operation Temperature (C)	-20-45
Rated Power (W) 额定功率	180-350	Efficiency (%) 效率	≥82
Weight (Kg) 重量	3.6	Color颜色	Black/White
Reduction Ratio减速比	1:4.4	Cable Location出线方式	Shaft center right
Max Torque (N.m) 最大扭矩	30	Noise Grade (dB) 噪音等级	≤55db
Wheel Diameter (Inch) 轮径	26	IP Grade 防水等级	IP65
Rated Speed (km/h) 额定速度	25	Salt spray Test Standard (h) 盐雾测试	24/96
Drive and Freewheel 飞轮	6-7s		

	<h3>250W套件</h3> <p>1/ Motor: 36v/48v 250w rear gear motor,25km/h (16-28")  2/ Motor extension cable: 1.2*1000mm  3/ Controller: sinewave 36/48v 13A-15A  4/ Display: LED/LCD  5/ Throttle: twist/thumb throttle  6/ Brake lever: AL alloy with power cut off  7/ E-bus cable: connect with display,brake lever,throttle  8/ PAS: torque sensor  9/ battery with charger: "36/48v lithium battery  AC 100V-240V,2A smart charger"</p>
	<h3>500W套件</h3> <p>1/ Motor: 48v 500w rear gear motor,35km/h (16-28")  2/ Motor extension cable: 1.5*1000mm  3/ Controller: sinewave 48v 22A  4/ Display: LED/LCD  5/ Throttle: twist/thumb throttle  6/ Brake lever: AL alloy with power cut off  7/ E-bus cable: connect with display,brake lever,throttle  8/ PAS: 1:1 PAS,12 magnets  9/ battery with charger: 48v lithium battery  AC 100V-240V,2A smart charger</p>
	<h3>750W套件</h3> <p>1/ Motor: 48v 750w rear gear motor,40km/h (16-28")  2/ Motor extension cable: 2.0*1000mm  3/ Controller: sinewave 48v 25A  4/ Display: LED/LCD  5/ Throttle: twist/thumb throttle  6/ Brake lever: AL alloy with power cut off  7/ E-bus cable: connect with display,brake lever,throttle  8/ PAS: 1:1 PAS,12 magnets  9/ battery with charger: 48v lithium battery  AC 100V-240V,2A smart charger</p>
	<h3>1000W套件</h3> <p>1/ Motor: 48v 1000w rear gearless motor,50km/h (20-28")  2/ Motor extension cable: 2.0*1000mm  3/ Controller: sinewave 48v 30A  4/ Display: LED/LCD  5/ Throttle: twist/thumb throttle  6/ Brake lever: AL alloy with power cut off  7/ E-bus cable: connect with display,brake lever,throttle  8/ PAS: 1:1 PAS,12 magnets  9/ battery with charger: 48v lithium battery  AC 100V-240V,2A smart charger</p>



Model No.型号	TKTM/01	Resolution(mV/N.m)灵敏度	35
Input Voltage(V)供电电压	3.8-5.5	Temperature( C )温度	-20 - 85 C
Output Voltage(V)输出电压	0.75-3.6	Weight(g)重量	500
Current(W)电流	<0.014	BB Width(mm)宽度	68
Signals(P)速度信号	32	Mounting Position安装位置	Bottom Bracket五通管
Resolution(N.m)扭矩	0-85	Waterproof Grade防水等级	IP65