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Varstrom US JJ R/F-125EVH+125XVH DZ

Varstrom 48V 500W/750W Ebike Hub Motor Conversion Kit Instruction Manual

MODELS: 125EVH, 125XVH (FRONT & REAR HUB)

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your Varstrom 48V 500W/750W Ebike Hub Motor Conversion Kit. This kit is designed to transform a standard bicycle into an electric bicycle, offering enhanced power and speed for various riding conditions. Please read this manual thoroughly before installation and use to ensure safe and optimal performance.

2. Safety Information

Always prioritize safety during installation and operation. Wear appropriate safety gear, including a helmet. Ensure all connections are secure and waterproofed where necessary. Do not attempt to modify components beyond their intended design. Consult a professional bicycle mechanic if you are unsure about any installation steps.

3. Package Contents

Your Varstrom Ebike Hub Motor Conversion Kit includes the following components:

- Pre-laced Motor Wheel (Front or Rear Hub, depending on order)
- Intelligent Controller
- Brake Levers (with motor cut-off sensors)
- Thumb Throttle
- PAS (Pedal Assist Sensor)
- Wiring Cables (including 1T4 cable)

- Headlight
- LCD Display (Optional, VD03, VD04, or EKD01)
- User Manual

Note: The ebike battery is sold separately and is not included in this kit.



Figure 1: Overview of included components and wiring connections.

4. Product Overview & Specifications

The Varstrom Ebike Hub Motor Kit is available in two main versions: Standard (125EVH) and Performance (125XVH), offering different power outputs and features to suit various riding needs.



Hub Motor Specifications



125EVH 48V500W
Front Hub Motor

Standard Version



125EVH 48V500W
Rear Hub Motor

Standard Version



125XVH 48V500W
Rear Hub Motor

Performance Version



125XVH 48V750W
Rear Hub Motor

Performance Version

Motor Model	125EVH 48V500W Front Hub Motor (Standard Version)	125EVH 48V500W Rear Hub Motor (Standard Version)	125XVH 48V500W Rear Hub Motor (Performance Version)	125XVH 48V750W Rear Hub Motor (Performance Version)
Motor Type	Gear Drive Brushless Motor			
Rated Power	500W	500W	500W	750W
Peak Power	800W	800W	864W	1056W
Rated Voltage	48V	48V	48V	48V
Max Speed	40-45KM/h	40-45KM/h	45-50KM/h	55-60KM/h
Max Torque	65N.m	65N.m	65N.m	80N.m
Efficiency	≥78%	≥78%	≥80%	≥80%
Compatible Size	100mm Front Dropout	135-145mm Rear Dropout	135-145mm Rear Dropout	135-145mm Rear Dropout
Brake Type	Disc Brake / V Brake			
Spoke Type	12G * 36H			
Cassette Type	≤10-Speed Cassette			
Noise Grade	<60dB			
Waterproof	IPX5			
Wheel Size	20/26/27.5/700C			

Figure 2: Detailed specifications for various Varstrom hub motor models.



Your Ride, Your Choice: Standard or Performance.

Standard Version 95EVH / 125EVH



A reliable, conventional design perfect for daily & recreational use.



Applications: Daily commuting, casual city riding, short-distance travel and other low-intensity use.



Cost-Effective



Performance Version 125XVH



An upgraded architecture delivering higher speed, greater strength, better heat dissipation, and reduced noise for demanding applications.



Applications: Food delivery, cargo carrying, long-distance tours, and other high-demand, high-intensity use.



Premium Investment

Figure 3: Comparison between Standard (125EVH) and Performance (125XVH) motor versions.

Key Features:

- **High Efficiency:** Motors achieve >80% efficiency for optimal power usage.
- **Quiet Operation:** Noise levels are kept below 60dB for a smoother ride.
- **Waterproof Rating:** IPX5 rating ensures reliability in various weather conditions.
- **Durable Gears:** Features durable nylon helical gears for extended lifespan (Performance version).



Dual-Layer Gears: Feel the difference in torque



Effortless Inclines:
Power up hills without strain.



Immediate Thrust:
Accelerate instantly in traffic.



Unwavering Power:
Carry heavy loads with
consistent performance.



Refined Durability:
A smoother, quieter, and
longer-lasting ride.

Figure 4: Illustration of the dual-layer gear system for improved torque and durability.

5. Compatibility

The Varstrom Ebike Hub Motor Kit offers broad compatibility with various bicycle types and sizes:

- Wheel Sizes:** Compatible with 20", 26", 27.5", and 700C (28"/29") wheels.
- Dropout Widths:** Rear hub motor fits bicycles with a rear dropout width of 135-145mm. Front-drive version is compatible with a 100mm dropout.
- Brake Systems:** Supports both Disc and V-Brakes.
- Gears:** Compatible with cassette flywheels (not for screw-on freewheels) and works with up to 10-speed gear systems.



• 28" / 29" / 700C

• 27.5"

• 26"

• 20"

• How to Choose?				
• Rim Size	28"/29"/700C	27.5"	26"	20"
• Rim Diameter	630mm(24.8")	600mm(23.6")	570mm(22.4")	420mm(16.5")
• Compatible Tire	700C:32C-50C Width		20"/26"/27.5"/28"/29":1.5"-2.4"Width	

HOW TO CHOOSE SUITABLE WHEEL SIZE?



Where the tire is marked

Step 1: Find where the tire size is marked on your bike

Step 2: Check the label number (example: if it says 26x1.95 as shown)

Step 3: Determine tire size. (Follow step 2 to determine and confirm that your bicycle tires are 26 inches.)

Figure 5: Guide for selecting the correct wheel size for your conversion kit.

6. Setup & Installation

Follow these general steps for installing your ebike conversion kit. Refer to the detailed wiring diagram (Figure 1) for specific connections.

- 1. Prepare Your Bicycle:** Ensure your bicycle is clean and stable. Remove the existing front or rear wheel, depending on your kit type.
- 2. Install Motor Wheel:** Mount the pre-laced motor wheel into the appropriate dropout (front or rear). Ensure it is securely fastened.
- 3. Mount Controller:** Secure the intelligent controller to your bicycle frame in a protected location, typically near the battery or motor.
- 4. Install Brake Levers:** Replace your existing brake levers with the provided ones, which include motor cut-off sensors.
- 5. Attach Throttle:** Install the thumb throttle on your handlebar.

6. **Install PAS Sensor:** Mount the Pedal Assist Sensor near your crankset. Note: A right-side PAS sensor is needed for hollow cranksets.
7. **Connect Wiring:** Carefully connect all components to the controller using the provided wiring cables. Match colors and connectors as per the wiring diagram. Ensure all connections are tight and protected from moisture.
8. **Install Display:** Mount your chosen display (VD03, VD04, or EKD01) on the handlebar and connect it to the main wiring harness.
9. **Connect Battery:** Connect your 48V/52V ebike battery (sold separately) to the controller.
10. **Final Checks:** Before riding, double-check all connections, ensure brakes are functioning correctly, and verify that the motor engages and disengages properly.

Installation Video Guides:

Video 1: General installation guide for a Bafang Hub Motor Conversion Kit. (Source: Greenergia)

Video 2: Installation steps for a Hub Motor Kit. (Source: Lascycle)

7. Display Options

Customize your riding experience with three advanced display choices, all connecting to the BIKEGO+ app and featuring one-key speed limit adjustment:

- **VD03 Display:** A compact 1.5" LED screen, ideal for limited handlebar space or budget-conscious users. Covers essential functions.
- **VD04 Display:** A larger 3.5" IPS screen offering enhanced visuals and data clarity.
- **EKD01 Display:** A wide 2.4" horizontal display, also providing enhanced visuals and data.



EKD01 Display

-  2.4" TFT Screen
-  φ22.2/25.4mm Holder
-  Navigation Function
-  9 PAS Level
-  IP67 Waterproof
-  Support :English,Français,Español,Italiano,Deutsch,Polski,Nederlands,Čeština, 中文
-  Support Remote Locking & Unlocking(On“BIKEGO+”APP)
-  Quick-Switch to 25 km/h Street-legal Mode (Holding "+" and "-" Button Together)

VD03 Display

-  1.5" LED Screen
-  φ22.2mm Holder
-  English Version
-  9 PAS Level
-  IP67 Waterproof
-  “BIKEGO+”APP Support Remote Locking & Unlocking
-  Quick-Switch to 25 km/h Street-legal Mode (Holding "Power" and "-" Button Together)



VD04 Display

-  3.5"IPS Screen
-  φ22.2/25.4/31.8mm Holder
-  Navigation Function
-  9 PAS Level
-  IP67 Waterproof
-  Support :English,Français,Español,Italiano,Deutsch,Polski,Nederlands,Čeština, 中文
-  Support Remote Locking & Unlocking(On“BIKEGO+”APP)
-  Quick-Switch to 25 km/h Street-legal Mode (Holding "+" and "-" Button Together)



Figure 6: Visual representation of the VD03, VD04, and EKD01 display units.

8. Battery Parameters (Optional)

While the battery is sold separately, here are typical parameters for compatible 48V/52V battery systems to help you choose based on your range and power needs:

BATTERY PARAMETERS

• 48V 13Ah Shark Battery • 48V 16Ah			• 48V 19.2Ah Shark Battery • 48V 20Ah		
Type	48V 13Ah	48V 16Ah	48V 19.2Ah	48V 20Ah	
Watt Hour	624Wh	768Wh	921.6Wh	960Wh	
Battery Cell	18650 2600mAh	18650 3200mAh	L/G 21700 4800mAh	Sam*/sung 21700 5000mAh	
BMS	30A	30A	30A	30A	
Charge voltage	54.6V	54.6V	54.6V	54.6V	
Size (L*W*H)	368*90*111mm	368*90*111mm	367*90*127mm	367*90*127mm	
Weight	4.25kg	4.23kg	4.95kg	4.7kg	
USB Port	✓	✓	✓	✓	
Cycle Life	1000 times				
Protection Function	Over charge, Over discharge, Over current, Short circuit, Balance				
• 52V 20Ah YingWu Battery			• 48V 20Ah Voltz X Battery		• 48V 17.5Ah Rear Rack Battery
Type	52V 20Ah	48V 20Ah	48V 17.5Ah		
Watt Hour	1040Wh	960Wh	840Wh		
Battery Cell	Sam*/sung 21700 5000mAh	Sam*/sung 21700 5000mAh	18650 2500mAh		
BMS	30A	30A	30A		
Charge voltage	58.8V	54.6V	54.6V		
Size (L*W*H)	368*95*125mm	365*109*140mm	476*165*89mm		
Weight	5kg	5.2kg	6kg		
USB Port	✗	✓ USB & Type-C Fast Charge	✓		
Cycle Life	1000 times				
Protection Function	Over charge, Over discharge, Over current, Short circuit, Balance				

Figure 7: Table detailing various battery specifications for different capacities and types.

9. Operation

Once installed and the battery is connected, operate your ebike as follows:

- Power On:** Press and hold the power button on your display unit to turn on the system.
- Select Assist Level:** Use the '+' and '-' buttons on the display to select your desired pedal assist level. Higher levels provide more motor assistance.
- Throttle Use:** The thumb throttle provides instant power without pedaling. Use it for quick acceleration or maintaining speed.
- Braking:** The brake levers are equipped with motor cut-off sensors, which will instantly cut power to the motor when applied, ensuring safe stopping.
- Speed Limit:** Adjust the speed limit via the display (refer to display-specific instructions for details).
- Power Off:** Press and hold the power button to turn off the system when you are finished riding.

10. Maintenance

Regular maintenance will prolong the life and performance of your ebike conversion kit:

- **Cleanliness:** Keep the motor, controller, and battery clean and free from dirt and debris. Use a damp cloth, avoid high-pressure washing.
- **Connections:** Periodically check all electrical connections for tightness and signs of corrosion. Ensure waterproof connections remain sealed.
- **Cables:** Inspect cables for any damage, fraying, or kinks. Replace damaged cables immediately.
- **Battery Care:** Follow the manufacturer's instructions for your specific battery regarding charging, storage, and temperature. Avoid fully discharging the battery.
- **Mechanical Components:** Regularly check your bicycle's brakes, tires, and other mechanical parts as you would with a standard bike.

11. Troubleshooting

If you encounter issues, try these basic troubleshooting steps:

- **No Power:** Check battery charge, ensure battery is properly connected, and verify all main power cables are secure.
- **Motor Not Engaging:** Check PAS sensor alignment and connection. Ensure brake levers are not engaged (motor cut-off). Verify throttle connection.
- **Display Not Working:** Check display cable connection to the controller. Ensure the battery has power.
- **Intermittent Power:** Inspect all wiring for loose connections or damage.

For persistent issues, consult the detailed troubleshooting section in your kit's specific manual or contact Varstrom customer support.

12. Specifications

Attribute	Value
Bike Type	City Bike, Electric Bike
Age Range (Description)	Adult
Brand	Varstrom
Number of Speeds	10
Color	Black

Attribute	Value
Wheel Size Compatibility	20, 26, 27.5, 700C Inches
Frame Material	Aluminum
Suspension Type	Dual
Special Features	Digital Display, Durable, Headlight, IPX5 Waterproof, Taillight
Model Name	US JJ R/F-125EVH+125XVH DZ
Power Source	Electric motor
Wattage	500 watts (750W option available)
Wheel Material	Aluminum
Assembly Required	Yes
Bicycle Gear Shifter Type	Thumb
Skill Level	Beginner
Derailleur Configuration	Rear
Bicycle Drivetrain Type	Hub drive
Electric Assist Type	Hub motor
Frame Size (Dropout)	135-145 millimeters (Rear), 100 millimeters (Front)

13. Warranty & Support

Your Varstrom Ebike Hub Motor Conversion Kit comes with a warranty:

- **Return Policy:** 30 days return.
- **Repair or Replace:** 365 days repair or replace.

For further assistance or technical support, please refer to the contact information provided with your purchase documentation.