Varstrom 125XVH-750

Varstrom 48V 750W Rear Hub Motor Ebike Conversion Kit User Manual

Model: 125XVH-750

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your Varstrom 48V 750W Rear Hub Motor Ebike Conversion Kit, model 125XVH-750. This kit is designed to convert a standard pedal bicycle into an electric bicycle, enhancing your riding experience with electric assistance. Please read this manual thoroughly before installation and use to ensure proper function and safety.

The Varstrom 125XVH-750 kit features a 48V 750W rear hub motor engineered for efficient and quiet operation. It is compatible with 26", 27.5", and 700C bicycle frames that have a 135mm rear dropout spacing. The motor delivers a powerful boost, enabling a top speed of up to 37 miles per hour (60 km/h) and an RPM of 442±10. Its construction includes helical nylon gears for superior durability, wear resistance, and quiet performance, maintaining over 78% efficiency. The motor supports both disc brakes and V-brakes, offering versatility for various bicycle types and riding conditions.

Image 1.1: Overview of the Varstrom 48V 750W Rear Hub Motor Ebike Conversion Kit components, including the motor, wheel, controller, display, and various accessories.

2. Safety Information

Always prioritize safety when installing and operating your ebike conversion kit. Failure to follow safety guidelines can result in serious injury or damage to the product.

- **Wear a Helmet:** Always wear an approved bicycle helmet when riding your ebike.
- **Pre-Ride Checks:** Before each ride, check brakes, tire pressure, battery charge, and ensure all connections are secure.
- **Obey Traffic Laws:** Follow all local traffic laws and regulations for bicycles and electric bicycles.
- **Weather Conditions:** Exercise caution when riding in wet or adverse weather conditions. The motor is IPX5 waterproof, but prolonged heavy rain is not recommended.
- **Electrical Safety:** Do not attempt to open the motor or controller housing. Disconnect the battery before performing any maintenance or installation. Avoid exposing electrical components to water unnecessarily.
- **Weight Limits:** Be aware of the weight capacity of your bicycle frame and the added weight of the conversion kit.

- **Children:** This kit is not intended for use by children without adult supervision.

3. Package Contents

The Varstrom 48V 750W Rear Hub Motor Ebike Conversion Kit typically includes the following components. Please verify all items are present upon unboxing.

- Rear Wheel with Integrated Hub Motor
- Controller
- Brake Levers (or Hydraulic Brake Sensors)
- Thumb Throttle
- Controller Case
- PAS (Pedal Assist Sensor)
- 1T4 Cable (Main wiring harness)
- Headlight
- Sticker
- Plastic Straps
- Optional: Varstrom LCD Display (VD03, EKD01, or VD04)
- Optional: Battery

Image 3.1: Visual representation of the typical package contents for the Varstrom ebike conversion kit.

4. Specifications

Key technical specifications for the Varstrom 125XVH-750 Rear Hub Motor and associated components:

Image 4.1: Detailed motor specifications, including dimensions, power, speed, and environmental ratings.

Feature	Specification
Brand	Varstrom
Model	125XVH-750
Motor Type	Gear Drive Brushless Rear Hub Motor
Rated Power	750W
Peak Power	1056W
Rated Voltage	48V
Max Speed	55-60 KM/H (37 MPH)
Max Torque	80 N.m
Spoke Hole	36H * 12G
Brake Compatibility	Disc Brake / V Brake

Feature	Specification
Cassette Compatibility	≤10-Speed
Efficiency	>80%
Noise Grade	<60db
Waterproof Rating	IPX5
Operation Temperature	-20°C ~ 45°C
Rear Dropout Spacing	135-145mm
Controller Rated Voltage	48V
Controller Rated Power	750W
Controller Limit Current	22±1A
Controller Rated Current	11±1A
Controller Under-Voltage Protection	39±1V
Controller Over-Voltage Protection	62.4V

Battery Model	Downtube Battery 36V 15.6Ah	Downtube Battery 48V 13Ah	Downtube Battery 48V 16Ah	G80 Downtube Battery 48V 19.2Ah	G80 Downtube Battery 48V 20Ah	VoltzX Battery 48V 20Ah	YingWu Battery 52V 20Ah	Rear Rack Battery 48V 17.5Ah
Battery Cell	18650 2600mAh	18650 2600mAh	18650 3200mAh	L*/G 21700 4800mAh	Sam*/sung 21700 5000mAh	Sam*/sung 21700 5000mAh	Sam*/sung 21700 5000mAh	18650 2600mAh
BMS Max Protection Current	30A	30A	30A	30A	30A	30A	30A	30A
USB Port	✓	✓	✓	✓	✓	✓ USB/TYPE-C	✗	✓
Weight	3.9kg	4.25kg	4.23kg	4.95kg	4.7kg	5.2kg	5kg	6kg
Cycle Life	1000 times	1000 times	1000 times	1000 times	1000 times	1000 times	1000 times	1000 times
Battery Charger	✓	✓	✓	✓	✓	✓	✓	✓

Image 4.2: Specifications for optional Varstrom batteries, including capacity, cell type, weight, and cycle life.

5. Setup and Installation

Careful installation is crucial for the performance and safety of your ebike. If you are unsure about any step, consult a professional bicycle mechanic.

5.1. Bicycle Compatibility

Ensure your bicycle frame is compatible with the Varstrom 125XVH-750 kit. The motor is designed for 26", 27.5", and 700C wheel sizes and requires a rear dropout spacing of 135-145mm.

Image 5.1: Instructions for determining the correct wheel size for your bicycle by checking tire markings.

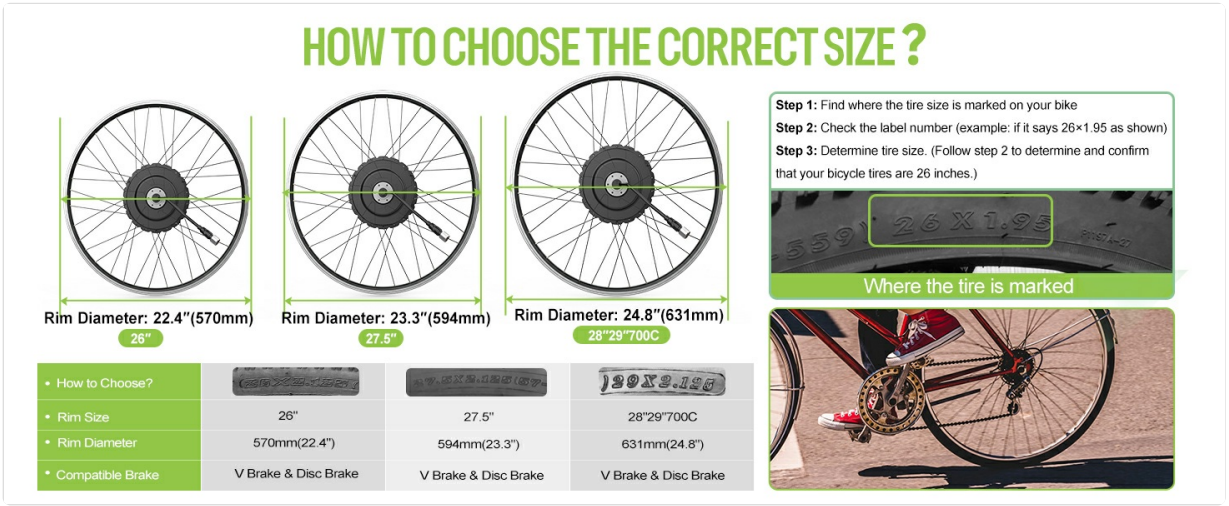

Image 5.2: Visual guide to selecting the correct wheel size (26", 27.5", 28"/29"/700C) based on rim diameter and compatible tire width.

Image 5.3: Illustration of rear dropout spacing (135-142mm) and compatibility with V-brakes and disc brakes.

5.2. Component Installation and Wiring

Follow the wiring diagram carefully to connect all components. Ensure all connections are secure and waterproof where applicable.

Image 5.4: Comprehensive wiring diagram illustrating the connection points for the controller, motor, battery, display,

throttle, brake levers, PAS sensor, and headlight.

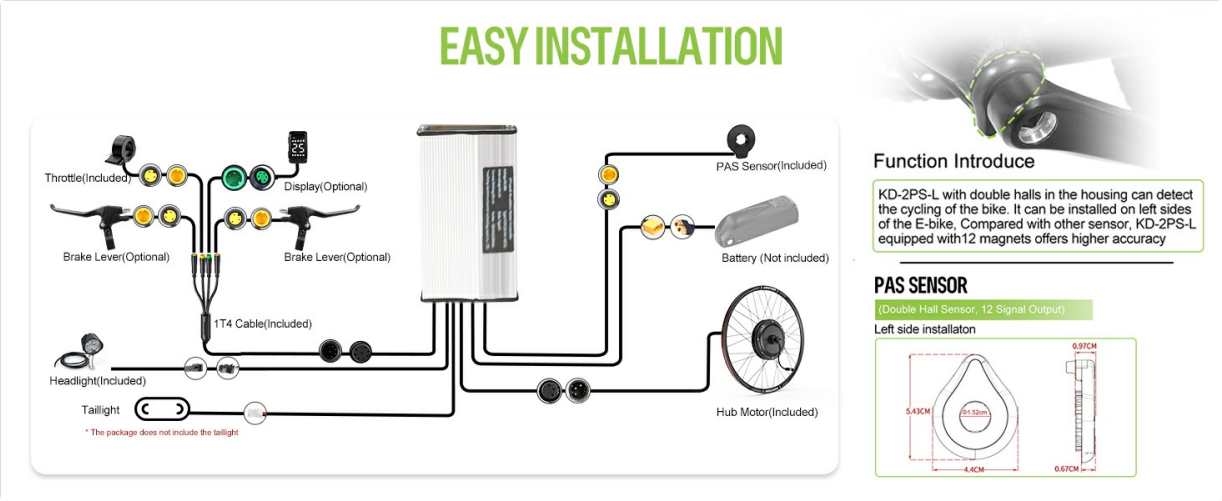

Image 5.5: Simplified installation overview and detailed information on the PAS sensor, including its function and recommended left-side installation.

- **Rear Hub Motor Wheel:** Replace your bicycle's rear wheel with the motor wheel. Ensure the dropout spacing is correct (135-145mm) and secure the wheel properly.
- **Controller:** Mount the controller securely, preferably in the provided controller case, in a location protected from impact and moisture.
- **PAS Sensor:** Install the PAS sensor on the left side of the crank arm. The KD-2PS-L sensor, equipped with 12 magnets, detects pedal rotation for pedal assistance.
- **Brake Levers/Sensors:** Install the brake levers or hydraulic brake sensors. These are crucial for safety as they cut off motor power when brakes are applied.
- **Thumb Throttle:** Mount the thumb throttle on the handlebar for manual power control.
- **Display (Optional):** If using an optional display, mount it on the handlebar.
- **Headlight:** Install the headlight for improved visibility.
- **Battery (Optional):** Securely mount the battery according to its design (e.g., downtube, rear rack). Ensure it is fully charged before first use.
- **Wiring:** Connect all components using the 1T4 cable and other provided wiring. Ensure all connectors are firmly seated and that cables are routed safely, away from moving parts and potential pinch points. Use plastic straps to tidy up wiring.

6. Operating Instructions

Once installed, familiarize yourself with the operation of your Varstrom ebike kit.

6.1. Power On/Off

Typically, the system is powered on by pressing and holding the power button on the display or controller. Repeat to power off.

6.2. Display Functions

The optional Varstrom displays (VD03, EKD01, VD04) provide various information and control options.

Image 6.1: Comparison table detailing features of the VD03, EKD01, and VD04 display options, including screen size, PAS levels, waterproofing, and connectivity.

- **PAS Level Adjustment:** Use the '+' and '-' buttons on the display to adjust the Pedal Assist System (PAS) level. There are 9 PAS levels, with higher levels providing more motor assistance.
- **Speed and Distance:** The display shows current speed, trip distance, total distance, and other riding metrics.
- **Battery Indicator:** Monitor the battery charge level on the display.
- **Bluetooth Function:** EKD01 and VD04 displays support Bluetooth connectivity, allowing for remote locking/unlocking and advanced ride data tracking via the 'BIKEGO+' app.
- **Navigation Function:** The VD04 display includes a navigation feature.
- **Quick-Switch to 25 km/h Street-legal Mode:** For compliance with certain regulations, you can activate a 25 km/h speed limit mode by holding the '+' and '-' buttons simultaneously on compatible displays.

Image 6.2: Close-up view of the VD03 display, highlighting its 1.5" LCD screen, 9 PAS levels, and Bluetooth functionality.

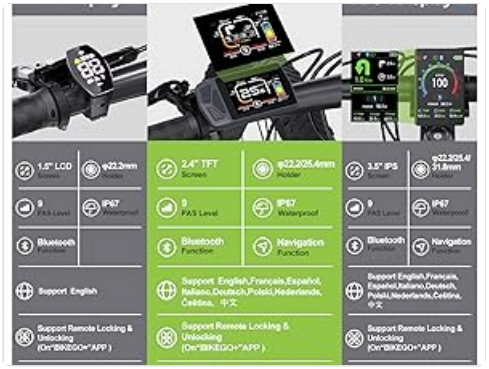

Image 6.3: Close-up view of the EKD01 display, showcasing its 2.4" TFT screen, IP67 waterproof rating, and navigation support.

Image 6.4: Close-up view of the VD04 display, highlighting its 3.5" IPS screen, Bluetooth, and navigation capabilities.

6.3. Throttle Operation

The thumb throttle provides on-demand power. Apply the throttle gently to accelerate. Release the throttle or apply brakes to cut power.

7. Maintenance

Regular maintenance ensures the longevity and safe operation of your ebike conversion kit.

- **Battery Care:** Charge the battery regularly, even when not in use, to maintain its health. Store the battery in a cool, dry place. Avoid fully discharging the battery.
- **Cleanliness:** Keep the motor, controller, and battery free from dirt and debris. Use a damp cloth for cleaning; avoid high-pressure washing directly on electrical components.
- **Connections:** Periodically check all electrical connections for tightness and corrosion. Ensure waterproof connectors are properly sealed.
- **Brakes:** Regularly inspect brake pads and cables (or hydraulic fluid) and adjust as needed. Ensure the brake cut-off sensors are functioning correctly.
- **Tires:** Maintain correct tire pressure and inspect tires for wear or damage.
- **General Bicycle Maintenance:** Continue to perform regular maintenance on your bicycle's mechanical components, such as chain lubrication, gear adjustments, and bearing checks.

8. Troubleshooting

This section addresses common issues you might encounter. For problems not listed here, contact Varstrom support.

Problem	Possible Cause	Solution
Motor not assisting	Battery low or off Loose electrical connection Brake levers engaged PAS sensor issue	Check battery charge and power on Inspect all wiring connections Ensure brake levers are fully released Check PAS sensor alignment and wiring
Display not turning on	Battery low or off Loose display connection	Check battery charge and power on Ensure display cable is securely connected
Reduced power or range	Low battery charge Tire pressure low Riding in high PAS levels constantly Battery degradation	Fully charge battery Inflate tires to recommended pressure Use lower PAS levels when possible Consider battery replacement if old
Unusual noises from motor	Loose spokes Foreign object in motor Internal motor issue	Check spoke tension Inspect for debris near motor Contact Varstrom support if issue persists

9. Warranty and Support

For warranty information, please refer to the documentation provided with your purchase or contact Varstrom directly. Keep your proof of purchase for warranty claims.
If you require technical assistance or have questions regarding your Varstrom ebike conversion kit, please visit the official Varstrom website or contact their customer support channels.