

## Varstrom 125XVH-ZH

# Varstrom 125XVH-ZH Rear Hub Motor Ebike Conversion Kit User Manual

Models: 48V 500W, 48V 750W

## 1. INTRODUCTION AND SAFETY INFORMATION

This manual provides essential instructions for the safe installation, operation, and maintenance of your Varstrom 125XVH-ZH Rear Hub Motor Ebike Conversion Kit. Please read this manual thoroughly before attempting installation or operation. Retain this manual for future reference.

### 1.1 General Safety Warnings

- Always wear a helmet and appropriate safety gear when riding an electric bicycle.
- Ensure all connections are secure and waterproofed where necessary.
- Do not modify the motor, controller, or battery system. Unauthorized modifications can lead to malfunction, injury, or void the warranty.
- Regularly inspect your bicycle and the conversion kit components for wear, damage, or loose connections.
- Be aware of local regulations regarding electric bicycles, including speed and power limits.
- Keep children and pets away from the kit components during installation and operation.
- Avoid exposing the battery to extreme temperatures, direct sunlight, or moisture.

## 2. PACKAGE CONTENTS

Verify that all components listed below are present in your package. If any items are missing or damaged, contact Varstrom customer support immediately.



Image 2.1: Overview of the Varstrom Ebike Conversion Kit components, including the rear hub motor wheel, battery, display, controller, throttle, brake levers, PAS sensor, and wiring.

- Rear Hub Motor Wheel (Pre-laced to selected rim size: 20"/26"/27.5"/700C)
- Motor Controller
- Controller Case
- Brake Levers (or Hydraulic Brake Sensors)
- Thumb Throttle
- PAS (Pedal Assist Sensor)
- Vastrom LCD Display (Optional, specific model may vary)
- Battery (Optional, specific model may vary)
- Extension Cable
- 1T4 Cable (Main wiring harness)
- Headlight
- Plastic Straps for cable management

- Instruction Manual (This document)

## 3. PRODUCT OVERVIEW

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The Varstrom 125XVH-ZH kit converts a standard bicycle into an electric bicycle, providing pedal assistance or throttle-controlled power. It features a robust rear hub motor and a comprehensive set of components for a complete conversion.

### 3.1 Key Features

- **Powerful Brushless Rear Hub Motor:** Available in 48V 500W or 48V 750W configurations, offering efficient and quiet operation.
- **Advanced Helical Gearing:** Optimized internal structures for wear resistance and extended lifespan, ensuring durability and quiet performance.
- **Wide Compatibility:** Fits 20" (500W only), 26", 27.5", and 700C bicycle frames with 135mm-145mm rear dropout spacing. Compatible with both disc brakes and V-brakes.
- **Integrated Controller:** Manages power delivery and system functions.
- **Optional Display:** Provides real-time riding data, battery status, and control over assist levels.
- **Waterproof Connectors:** Designed for enhanced splash and weather resistance (IPX5 rated motor).

# VARSTROM 125XVH 48V750W Performance Version

Gear Drive Brushless Motor

## Rear Hub Motor



**750W**  
Peak Power



**1056W**  
Peak Power



**55-60KM/h**  
Max Speed



**80N.m**  
Max Torque



**135-145mm**  
Rear Dropout Size



**IPX5**  
Waterproof



Image 3.1: The Varstrom 125XVH-ZH rear hub motor, highlighting its power, speed, torque, and waterproof rating.



# Advanced Helical Gearing & Internal Design

## Engineered For High-intensity Use

Wear-resistant | Long-lasting



Image 3.2: Illustration of the advanced helical gearing and internal design for high-intensity use, emphasizing wear-resistance and longevity.

## 4. COMPATIBILITY

Before installation, ensure your bicycle meets the following compatibility requirements:

- **Rear Dropout Spacing:** Your bicycle frame must have a rear dropout spacing of 135mm to 145mm (5.31" to 5.71").
- **Wheel Size:** The kit is available for 20" (500W version only), 26", 27.5", and 700C wheel sizes. Select the kit that matches your bicycle's wheel size.
- **Brake Type:** Compatible with both disc brakes and V-brakes.
- **Cassette Flywheel:** Supports cassette flywheels with up to 10 speeds.

# Motor Specifications



6-Hole Mounting Type



Cassette Type



Compatible Rear Dropout Size: 135-145mm

135-145MM

Brand	Varstrom	
Model	125XVH	
Version	Performance Version	
Type	Gear Drive Brushless Motor	
Installation	Rear Hub Motor	
Rated Power	500W	750W
Peak Power	864W	1056W
Rated Voltage	48V	48V
Max Speed	45-50KM/h	55-60KM/h
Max Torque	65N.m	80N.m
Spoke Hole	36H * 12G	
Brake Type	Disc Brake / V Brake	
Cassette Type	≤10-Speed	
Efficiency	>80%	
Noise Grade	<60db	
Waterproof	IPX5	
Operation Temperature	-20℃ ~ 45℃	

Image 4.1: Detailed motor dimensions and rear dropout compatibility (135-145mm).





Image 4.2: Examples of various bicycle types compatible with the Varstrom motor, including mountain bikes, road bikes, cargo bikes, city bikes, recumbent trikes, and folding bikes.

## 5. SETUP AND INSTALLATION

Installation of the Varstrom Ebike Conversion Kit requires basic mechanical skills. If you are unsure about any step, consult a professional bicycle mechanic.

### 5.1 Installation Diagram



Image 5.1: Comprehensive wiring diagram showing the connection points for the hub motor, controller, battery, display, throttle, brake levers, PAS sensor, and headlight.

## 5.2 Step-by-Step Installation Guide

### 1. Prepare Your Bicycle:

- Remove the existing rear wheel from your bicycle.
- If applicable, transfer your cassette flywheel to the new motor wheel.

### 2. Install the Motor Wheel:

- Carefully insert the Varstrom rear hub motor wheel into the bicycle's rear dropouts. Ensure the motor cable exits towards the non-drive side.
- Secure the wheel with the provided axle nuts, ensuring it is centered and tight.

### 3. Mount the Controller:

- Find a suitable location on your bike frame for the controller and its case, typically near the seat tube or down tube.



- Secure the controller case using screws or straps. Place the controller inside.

#### **4. Install the PAS Sensor:**

- Mount the PAS sensor on the bottom bracket spindle, typically on the non-drive side. Ensure the magnet disc is properly aligned with the sensor.

#### **5. Install Handlebar Components:**

- Mount the thumb throttle, brake levers (or brake sensors), and the display (if included) onto the handlebars. Adjust their positions for comfortable access.

#### **6. Connect Wiring:**

- Connect the motor cable to the controller.
- Connect the 1T4 cable to the controller, then connect the throttle, brake levers, display, and headlight to the 1T4 cable.
- Connect the PAS sensor to the controller.
- If using an optional battery, connect it to the controller.
- Ensure all connections are firm and secure. Use plastic straps to manage and secure cables, preventing them from interfering with moving parts.

#### **7. Final Checks:**

- Double-check all connections.
- Ensure the wheel spins freely and the brakes function correctly.
- Verify that no cables are pinched or obstructing steering or pedaling.

## **6. OPERATION**

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Once installed, operating your Varstrom ebike conversion kit is straightforward. Familiarize yourself with the display and controls before your first ride.

### **6.1 Display Functions (Optional)**

If your kit includes a display, it provides crucial information and control over the ebike system. Common display models include VD03, EKD01, and VD04, each offering varying features.



Image 6.1: Comparison of available display units (VD03, EKD01, VD04) showing their screen sizes, mounting options, PAS levels, waterproof ratings, and additional features like Bluetooth and navigation.

- **Power On/Off:** Press and hold the power button on the display to turn the system on or off.
- **Assist Level Selection:** Use the '+' and '-' buttons to cycle through pedal assist levels (typically 0-9). Level 0 provides no assistance.
- **Throttle Operation:** The thumb throttle provides power on demand, independent of pedaling. Use it cautiously, especially at higher assist levels.
- **Information Display:** The display shows current speed, battery level, trip distance, total distance, and assist level.
- **Headlight Control:** The headlight can typically be turned on/off via a button on the display or a separate switch.
- **Street-Legal Mode (25 km/h):** Some displays (EKD01, VD04) offer a quick-switch to a 25 km/h street-legal mode by holding the '+' and '-' buttons together.
- **Bluetooth & App Connectivity:** Certain displays (EKD01, VD04) support Bluetooth for remote locking/unlocking and advanced ride data tracking via the 'BIKEGO+' app.

## 6.2 Riding Tips

- Start in a low assist level to get accustomed to the motor's power.
- Use the throttle sparingly until you are comfortable with the ebike's acceleration.
- Always be aware of your surroundings and traffic.
- Plan your routes considering battery range, especially for longer rides.

## 7. MAINTENANCE

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

### 7.1 General Care

- **Cleaning:** Wipe down the motor, controller, and battery with a damp cloth. Avoid using high-pressure water jets directly on electrical components.
- **Connections:** Periodically check all electrical connections for tightness and corrosion.
- **Cables:** Inspect cables for fraying, cuts, or damage. Replace damaged cables immediately.
- **Fasteners:** Ensure all bolts and nuts, especially those securing the motor wheel, are tightened to the manufacturer's specifications.

### 7.2 Battery Care (If applicable)

- **Charging:** Use only the charger provided with your battery. Do not overcharge or completely discharge the battery.
- **Storage:** Store the battery in a cool, dry place, away from direct sunlight and extreme temperatures. If storing for extended periods, charge it to 50-70% every few months.
- **Disposal:** Dispose of old or damaged batteries according to local regulations for lithium-ion batteries.

## 8. TROUBLESHOOTING

This section addresses common issues you might encounter with your ebike conversion kit.

Problem	Possible Cause	Solution
Motor not providing power	Low battery charge Loose electrical connection PAS sensor not engaged Brake lever sensor activated	Charge battery Check all cable connections, especially motor and battery Ensure PAS sensor is correctly installed and magnet disc is spinning Check brake levers are fully released
Display not turning on	Battery not connected or dead Loose display cable Damaged display	Check battery connection and charge Ensure display cable is securely plugged into the 1T4 cable Contact support for replacement
Inconsistent pedal assist	PAS sensor misalignment Damaged PAS sensor	Adjust PAS sensor and magnet disc alignment Inspect PAS sensor for damage, replace if necessary



Problem	Possible Cause	Solution
Unusual noises from motor	Loose spokes Internal motor issue	Check spoke tension and tighten if loose Discontinue use and contact support

If you encounter an issue not listed here or if the suggested solutions do not resolve the problem, please contact Varstrom customer support.

## 9. SPECIFICATIONS

Detailed technical specifications for the Varstrom 125XVH-ZH Rear Hub Motor Ebike Conversion Kit.

# Motor Specifications

### 6-Hole Mounting Type

### Cassette Type

Compatible Rear Dropout Size: 135-145mm

Brand	Varstrom	
Model	125XVH	
Version	Performance Version	
Type	Gear Drive Brushless Motor	
Installation	Rear Hub Motor	
Rated Power	500W	750W
Peak Power	864W	1056W
Rated Voltage	48V	48V
Max Speed	45-50KM/h	55-60KM/h
Max Torque	65N.m	80N.m
Spoke Hole	36H * 12G	
Brake Type	Disc Brake / V Brake	
Cassette Type	≤10-Speed	
Efficiency	>80%	
Noise Grade	<60db	
Waterproof	IPX5	
Operation Temperature	-20℃ ~ 45℃	

Image 9.1: Table detailing motor specifications including brand, model, type, rated power, peak power, rated voltage, max speed, max torque, spoke hole count, brake type, cassette type, efficiency, noise grade, waterproof rating, and operation temperature.

Specification	48V 500W Version	48V 750W Version
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Specification	48V 500W Version	48V 750W Version
Brand	Varstrom	
Model	125XVH	
Type	Gear Drive Brushless Rear Hub Motor	
Rated Power	500W	750W
Peak Power	864W	1056W
Rated Voltage	48V	
Max Speed	45-50 KM/H (approx. 31 MPH)	55-60 KM/H (approx. 37 MPH)
Max Torque	65 N.m	80 N.m
Spoke Hole	36H * 12G	
Brake Type	Disc Brake / V Brake	
Cassette Type	≤10-Speed	
Efficiency	>80%	
Noise Grade	<60db	
Waterproof	IPX5	
Operation Temperature	-20°C ~ 45°C	



## 9.1 Controller Specifications

Controller Model	DC Rated Voltage	Rated Power	Limit Current	Rated Current	Under-Voltage Protection	Over-Voltage Protection
48V500W	48V	500W	22±1A	11±1A	39±1V	62.4V
48V750W	48V	750W	22±1A	11±1A	39±1V	62.4V

## 9.2 Battery Specifications (Optional)

If you purchased a battery with your kit, refer to the specific battery model for detailed specifications. Below is a general overview of common Varstrom battery options.

# BATTERY SPECIFICATION

<div>36V 15.6Ah</div> <div>48V 13Ah</div> <div>48V 16Ah</div> 			<div>48V 19.2Ah</div> <div>48V 20Ah</div> 		
Battery Model	Shark Battery 36V 15.6Ah	Shark Battery 48V 13Ah	Shark Battery 48V 16Ah	G80 Shark Battery 48V 19.2Ah	G80 Shark Battery 48V 20Ah
Battery Cell	18650 2600mAh	18650 2600mAh	18650 3200mAh	L*/G 21700 4800mAh	sam*sung 21700 5000mAh
BMS Max Protection Current	30A	30A	30A	30A	30A
USB Port	✓	✓	✓	✓	✓
Weight	3.9kg	4.25kg	4.23kg	4.95kg	4.7kg
Cycle Life	1000 times	1000 times	1000 times	1000 times	1000 times
Battery Charger	✓	✓	✓	✓	✓




<div>48V 20Ah</div> 		<div>52V 20Ah</div> 		<div>48V 17.5Ah</div> 	
Battery Model	VoltzX Battery 48V 20Ah	YingWu Battery 52V 20Ah	Rear Rack Battery 48V 17.5Ah		
Battery Cell	Sam*/sung 21700 5000mAh	Sam*/sung 21700 5000mAh	18650 2600mAh		
BMS Max Protection Current	30A	30A	30A		
USB Port	✓ USB/TYPER-C	✗	✓		
Weight	5.2kg	5kg	6kg		
Cycle Life	1000 times	1000 times	1000 times		
Battery Charger	✓	✓	✓		

Image 9.2: Table comparing various Varstrom battery models, including voltage, capacity, cell type, BMS max protection current, USB port availability, weight, cycle life, and charger compatibility.

## 10. WARRANTY AND SUPPORT

Varstrom products are designed for quality and reliability. For warranty information and customer support, please refer to the following:

### 10.1 Warranty Information

Please retain your proof of purchase for warranty claims. The warranty period and terms may vary by component. Typically, motors and controllers come with a 1-year warranty against manufacturing defects. Batteries (if purchased from Varstrom) usually have a separate warranty period. For detailed warranty terms, please visit the official Varstrom website or contact customer support.

### 10.2 Customer Support

If you have any questions, require technical assistance, or need to make a warranty claim, please contact Varstrom customer support through the following channels:

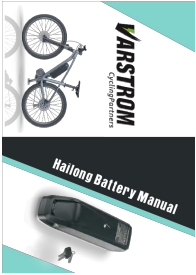








- **Official Website:** Visit the [Varstrom Store on Amazon](#) for product information and support links.
- **Email:** Refer to your purchase documentation for the customer support email address.
- **Online Contact Form:** Check the Varstrom official website for a contact form.

When contacting support, please provide your product model (125XVH-ZH), purchase date, and a detailed description of the issue.

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Related Documents - 125XVH-ZH

	<p><a href="#">VARSTROM Hailong Battery Manual: Operation, Maintenance, and Troubleshooting</a></p> <p>Comprehensive user manual for VARSTROM Hailong e-bike batteries. Covers function introduction, packing list, installation, operation, maintenance, storage, troubleshooting, and warranty activation. Includes safety guidelines and FAQ.</p>
	<p><a href="#">EKD01-AKSM Displayer Manual: Comprehensive Guide for E-Bike Displays</a></p> <p>Explore the EKD01-AKSM and B02NU-AKSM e-bike display unit with this detailed user manual. Learn about installation, features, settings, Bluetooth connectivity, app integration, and troubleshooting for your electric bicycle.</p>
	<p><a href="#">Bafang BBS Series Drive System User Guidance Manual</a></p> <p>Comprehensive user manual for Bafang BBS Series mid-drive eBike conversion kits, detailing models like M215, M315, M615, controller specifications, installation tools, maintenance, and safety precautions. Features Varstrom partnership.</p>

<div><p>Affordable. Reliable. Home Improvement.</p></div> <div><p>Gas Fireplace Pilot Assembly</p><p>Model ZH-1003A/ZH-796A/ZH-793A/ZH-1006A ZH-919A/ZH-794A/ZH-1005A/ZH-1004A</p></div>	<p><a href="#">VEVOR Gas Fireplace Pilot Assembly Installation and Compatibility Guide</a></p> <p>Comprehensive guide for VEVOR Gas Fireplace Pilot Assembly, including installation instructions, troubleshooting, and detailed compatibility lists for various gas fireplace models. Covers models ZH-1003A, ZH-796A, ZH-793A, ZH-1006A, ZH-919A, ZH-794A, ZH-1005A, and ZH-1004A.</p>
<div><p>Affordable. Reliable. Home Improvement.</p></div> <div><p>Gas Fireplace Pilot Assembly</p><p>Model ZH-1003A/ZH-796A/ZH-793A/ZH-1006A ZH-919A/ZH-794A/ZH-1005A/ZH-1004A</p></div>	<p><a href="#">VEVOR Gas Fireplace Pilot Assembly Instructions and Specifications</a></p> <p>Comprehensive assembly and installation guide for VEVOR Gas Fireplace Pilot Assemblies (models ZH-1003A, ZH-796A, ZH-793A, ZH-1006A, ZH-919A, ZH-794A, ZH-1005A, ZH-1004A). Covers specifications, compatibility with major brands like Lennox, Quadra-Fire, and Heat &amp; Glo, and detailed installation steps for natural gas and LPG.</p>
<div><p>Creole Feast® Outdoor Series</p><p>ASSEMBLY GUIDE Model: CFT2018</p><p>Crawfish Boiler plus Cast Iron Burner Cooker Combo</p><p><b>IMPORTANT:</b> This product is not to be used for cooking, grilling, or any other purpose other than as intended. It is not a pressure cooker and should not be used as one. It is not a pressure cooker and should not be used as one. It is not a pressure cooker and should not be used as one.</p><p><b>SAFETY:</b> This product is not to be used for cooking, grilling, or any other purpose other than as intended. It is not a pressure cooker and should not be used as one. It is not a pressure cooker and should not be used as one. It is not a pressure cooker and should not be used as one.</p><p>Visit us at <a href="http://www.creolefeast.com">www.creolefeast.com</a></p></div>	<p><a href="#">Creole Feast CFT2018 Assembly Guide: Crawfish Boiler Cooker Combo</a></p> <p>Comprehensive assembly guide for the Creole Feast CFT2018 Crawfish Boiler and Cast Iron Burner Cooker Combo. This document provides detailed instructions, a complete parts list with illustrations, hardware specifications, and safety precautions for setting up your outdoor cooking appliance.</p>