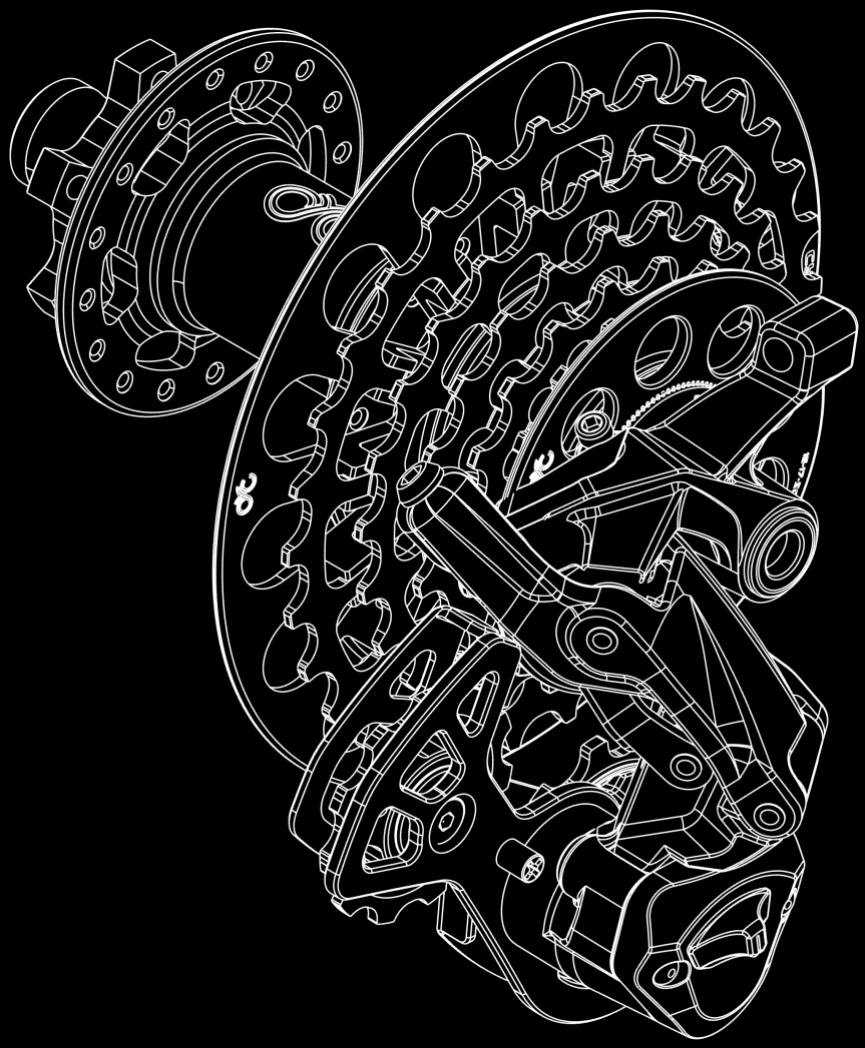

Heavy-Duty Drivetrain

User Manual

CYC MOTOR LTD
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INTRODUCTION

Overview

Welcome to Heavy-Duty Drivetrain, a comprehensive and high-performance drivetrain system designed for high-torque, mid-drive e-bike conversion kits. This solution combines a robust cassette, a reliable rear hub, a precise shifter, a short cage derailleur, and a long-lasting chain. Put together with our riders in mind, the Heavy-Duty Drivetrain ensures better chain lines, durability, and exceptional performance on any terrain.

Key Features and Benefits

- **Heavy-Duty 5-Speed Cassette:** Constructed from Chromoly steel and Aluminium 7075, this cassette offers a versatile 15-30T gearing range, providing optimal power transfer and durability for challenging rides.
- **e-Bike Rear Hub:** With 24 engagement points and a rachet-type freehub, this hub ensures quick and reliable power transfer. The hub is compatible with 6-bolt disc brakes and is available in two axle dimensions for flexibility.
- **Microshift ADVENT Trail Pro Shifter:** Designed for precise single-click shifting, this shifter features an aluminum clamp for secure mounting, ensuring effortless and accurate gear changes.
- **Microshift ADVENT Super Short Cage Clutch Derailleur:** Built with a steel cage and aluminum outer link, this derailleur provides stability and smooth operation, even on rough trails.
- **KMC e9 Turbo EPT Chain:** Featuring anti-rust EPT technology, this chain is designed for durability and longevity, maintaining performance in all weather conditions.

Compatibility Information

The Heavy-Duty Drivetrain is compatible with a wide range of mountain bikes and e-bikes. It is optimized for use with a 51.7mm optimum chainline at the center (20T), and offers compatibility adjustments for different gear sizes. The rear hub is available in with both 148mm and 157mm OLD configurations, and can be converted to 150mm with an additional axle kit, providing versatility for various bike setups. The 6-bolt disc brake compatibility ensures seamless integration with most modern braking systems.

For further details on compatibility and installation, please refer to the specific installation guidelines provided for each component.

Parts List

Cassette	
Hub	
Shifter	
Derailleur	
Bike Chain	

SAFETY INFORMATION

General Safety Guidelines

- **Intended Use:** The Heavy-Duty Drivetrain is specifically designed for high-torque e-bike applications. It is engineered to handle extreme conditions, but must be used as intended to ensure safety and performance.
- **Protective Gear:** Always wear appropriate protective gear, including a helmet, gloves, and protective eyewear when operating your e-bike.
- **Regular Inspections:** Before each ride, inspect your drivetrain components for any signs of wear or damage. Ensure all bolts and screws are properly tightened.

Installation Safety Tips

- **Professional Installation Recommended:** For optimal safety and performance, we recommend having the drivetrain installed by a professional bike mechanic.
- **Torque Specifications:** Follow the specified torque settings, such as 40 N.m for the cassette, to prevent damage during installation.
- **Chain Length and Tension:** Ensure the correct chain length and tension to prevent derailing, especially at full suspension travel. Improper chain length can lead to excessive wear or component failure.
- **Derailleur Setup:** Make sure the derailleur hanger is straight and the limit screws are correctly set to avoid shifting issues and potential damage.

Maintenance and Usage Safety

- **Avoid Shifting Under Load:** Unlike standard drivetrains, avoid shifting gears under high load to prevent damage to the sprocket teeth or chain. Momentarily reduce motor output when shifting.
- **Chain Wrap Optimization:** Check that the chain wrap is maximized on each sprocket by adjusting the B tension screw. Proper chain wrap reduces wear and prevents the chain from lifting off the sprocket.
- **Field Testing:** After setup, test the drivetrain on a bike stand before field use. Gradually increase power to ensure everything is functioning correctly.
- **Environmental Conditions:** While the drivetrain is designed for durability, avoid prolonged exposure to corrosive environments and clean regularly to maintain performance.

By adhering to these safety guidelines, you can ensure a long-lasting and efficient riding experience with the Heavy-Duty Drivetrain. Always prioritize safety and proper maintenance to get the most out of your e-bike system.

COMPONENT OVERVIEW

Cassette

Heavy-Duty 5-Speed Cassette

- **Gearing:** 15-30T (15-17-20-24-30T)
- **Material:** Chromoly steel and Aluminium 7075
- **Design:** Engineered for high-torque e-bike applications, providing a robust and reliable performance.
- **Chainline:** Optimized for various terrain.
- **Features:** Single-piece construction for durability and corrosion resistance, with an optimized tooth profile for high-power applications.

Hub

e-Bike Rear Hub

- **Engagement Points:** 24 (15 degrees) for quick power transfer.
- **Freehub Type:** Impel 24T ratchet-type, Steel Shimano HG.
- **Axle Type:** Steel thru-axle for increased strength.
- **Spoke Configuration:** J-Bend, 32H for optimal spoke tension.
- **Brake Compatibility:** 6-Bolt Disc, suitable for modern braking systems.
- **Features:** Durable design with a steel freehub body, enhancing bearing size and preventing damage.

Shifter

Microshift ADVENT Trail Pro Shifter

- **Type**: Single Click for precise control.
- **Side**: Right
- **Clamp Material**: Aluminum for secure mounting.
- **Features**: Designed for seamless gear transitions, ensuring accurate and responsive shifting.
- **Resources**: Product Link | Installation Manual

Derailleur

Microshift ADVENT Super Short Cage Clutch Derailleur

- **Cage Material**: Steel
- **Outer Link Material**: Aluminum
- **Features**: Short cage design for optimal chain wrap, stability, and reduced wear.
- **Resources**: Product Link | Installation Manual

Chain

KMC e9 Turbo EPT Chain

- **Size**: 1/2"x11/128"x136 Links
- **Coating**: EPT (Anti-rust) for corrosion resistance in harsh conditions.
- **Features**: Designed for durability and longevity, ensuring smooth operation and reduced maintenance.
- **Resources**: Product Link

INSTALLATION INSTRUCTIONS

Required Tools

- Torque wrench
- Allen wrenches (various sizes)
- Chain breaker tool
- Grease
- Bike stand (recommended)

Pre-Installation Checklist

- Ensure all components are compatible with your bike.
- Inspect components for any shipping damage.
- Gather all necessary tools and materials.

Cassette Installation

- Apply a small amount of grease to the freehub body and thread cap.
- Mount the cassette onto the freehub body.
- Torque the lockring to 40 N.m to secure the cassette.

Rear Hub Installation

Danger of injury from incorrectly built wheels!
Incorrectly built wheels can suddenly fail while being ridden. A crash with serious consequences is usually unavoidable.

- The wheels must be built by a qualified specialist.
- Radical lacing is not permitted. It is not suitable for transferring torque and may cause damage to the hub flange and/or spokes.
- Maximum spoke tension: 120–130 kgf on the drive side spokes. Measure spoke tension with the tire removed from the wheel.
- The maximum spoke tension is 1200 N for cross-spokes / 1000 N for radial spokes
- The maximum spoke tension of the hub and the rim used must not be exceeded. The lower value applies in each case.

- Insert the axle into the hub and attach the wheel to the bike frame.
- Ensure the wheel is centered and secure.

For further specifications for wheel building, please refer to the technical specifications section in this manual (p.9).

Shifter Installation

- Mount the shifter on the right side of the handlebar.
- Secure the clamp using an Allen wrench.
- See the official Microshift installation guideline here: Installation Manual

Derailleur Installation

- Attach the derailleur to the derailleur hanger.
- Verify the hanger is straight to ensure proper shifting.
- Tighten the mounting bolt securely.
- See the official Microshift installation guideline here: Installation Manual

Chain Installation

- Determine the correct chain length by wrapping it around the largest sprocket and chainring.
- Add two links to the measured length for proper tension.
- Use a chain breaker tool to adjust the chain length.
- Connect the chain using a quick link or rivet.
- Verify that the chain length is sufficient to allow rear suspension full travel (bottom out) without damage to the drivetrain.

SETUP AND ADJUSTMENT

Initial Setup

1. Place the bike on a stand for easy access and adjustments.
2. Check that all components are properly installed and secure.

Derailleur Adjustment

1. Set the upper and lower limit screws to prevent over-shifting.
   Lower Limit: Rotate the crank by hand and adjust the screw until the chain runs smoothly without clicking.
   Upper Limit: Push the derailleur by hand to ensure it reaches the largest sprocket but not beyond.
2. Adjust the B tension screw to optimize chain wrap, keeping the upper pulley close to the sprocket without contact.

Shifter Calibration

- Tighten the derailleur cable by hand.
- Shift through each gear manually, ensuring smooth transitions.
- Use the barrel adjuster to fine-tune cable tension and eliminate hesitation or noise.

Chain Tensioning

1. Verify the chain has appropriate tension and is not too loose or tight.
2. Adjust length if necessary for optimal performance.

Fine-Tuning Tips

- Test ride the bike to ensure all adjustments are correct.
- Make minor adjustments as needed to improve shifting precision.
- Gradually increase motor power during testing to confirm drivetrain stability.

MAINTENANCE AND CARE

To ensure optimal performance and longevity of the **Heavy-Duty Drivetrain**, regular cleaning, inspection, and maintenance are essential. Dirt and debris can accumulate during rides, and drivetrain components experience additional strain over time. It is recommended that users inspect the drivetrain before and after each ride.

Power Safety: Before performing any maintenance, repair, or transportation, disconnect all power supplies from the bike's electrical system to prevent unintentional activation, which could cause injury or damage.

Avoid Contact with Moving Parts: Never place your hands near the chain, cassette, derailleur, or any moving parts while the drivetrain is in motion.

Cooling Period: After riding, allow the drivetrain components to cool before performing maintenance.

Storage Conditions: Store the bike in a cool, dry place, away from direct sunlight and moisture to prevent premature wear and corrosion.

Authorized Repairs Only: Do not disassemble or modify drivetrain components. Maintenance and repairs should be performed by qualified professionals using only original **CYC MOTOR** parts to maintain safety and warranty coverage.

Lubrication: Regularly lubricate moving components such as the chain to maintain smooth operation and reduce wear.

Addressing Abnormalities: If you notice any unusual noises, shifting issues, or performance concerns, stop using the drivetrain immediately and consult an authorized **CYC MOTOR** dealer.

Proper Component Replacement: Do not use aftermarket or non-approved parts, as drivetrain materials are specifically engineered for their intended function.

Regular Maintenance Schedule

Task	Intervale
Check the functionality of the rear wheel hub. The engagement of the rear wheel hub must operate perfectly!	Before each ride
Check the drivetrain for damage	After each ride
Clean drivetrain with soft cloth and a suitable cleaner. → Do not use a high-pressure cleaner, aggressive cleaning agents, solvents or surfactants!	After each ride
Lubricate the chain with a suitable chain lubricant and inspect chain condition.	Monthly
Inspect the derailleur and shifter for smooth operation; adjust if necessary.	Monthly
Check the tightening torques – Screws of the brake rotor: 6 Nm – Lock ring on the cassette: 40 Nm	20 operating hours
Maintenance of the hub Under normal operating conditions In case of extreme operating conditions (regular rides in dust, rain, snow, or in case of frequent transport while raining)	 6 months 3 months

Disposal And Environmental Protection

The statutory regulations shall apply. Whenever possible, avoid creating waste.
Waste, especially carbo\n, lubricants, cleaners and any other fluids must be disposed in an environmentally compatible manner.

Cleaning and Lubrication

Cleaning: Use a soft brush and mild detergent to clean the cassette, chain, and derailleur. Rinse with water and dry thoroughly to prevent rust.

Lubrication: Put the bike on a bike stand. Apply chain lubricant sparingly while turning the crank to distribute evenly. Wipe off excess lubricant to prevent dirt accumulation.

Troubleshooting Common Issues

Poor Shifting:

- Check cable tension and adjust the barrel adjuster.
- Ensure derailleur hanger is straight.

Noise During Shifting:

- Inspect for debris in the drivetrain.
- Check the limit screws and B tension adjustment.

Chain Skipping:

- Verify that the sprockets are not bent.
- Verify that the derailleur is adjusted properly.
- Verify correct chain length and tension.
- Ensure cassette and chain are not excessively worn.

Storage Recommendations

- Store the bike in a dry, cool place to prevent rust and corrosion.
- If storing for extended periods, clean and lubricate the drivetrain before storage.

TECHNICAL SPECIFICATIONS

Detailed Component Specifications

Cassette

Heavy-Duty 5-Speed Cassette

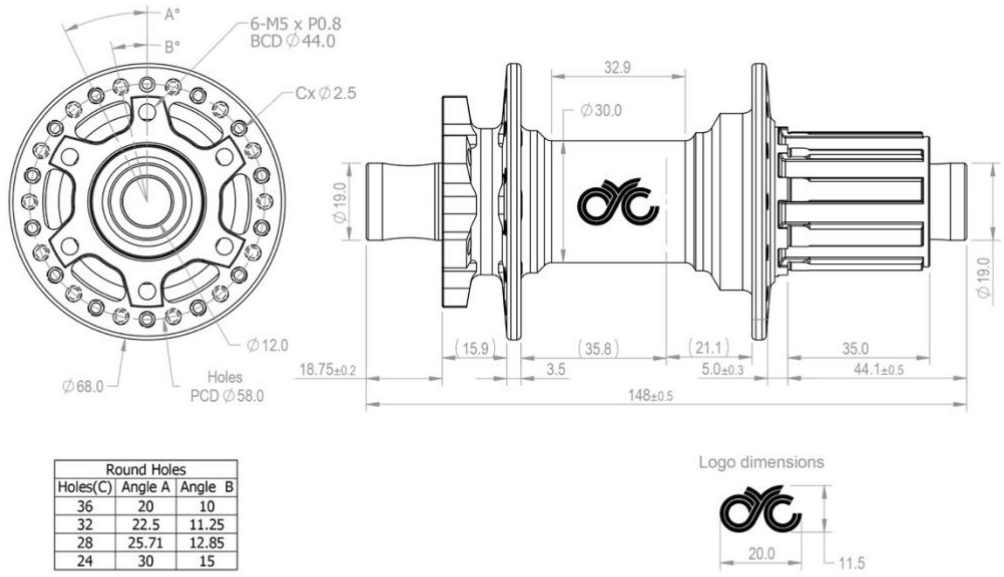
- **Model:** Heavy-Duty 5-Speed
- **Gearing:** 15-30T (15-17-20-24-30T)
- **Chainline:**
  - 51.7mm center (20T)
  - 60.7mm final cog (15T)
  - 42.7mm 1st cog (30T)
- **Material:** Chromoly steel and Aluminium 7075
- **Weight:** 320g

Hub

e-Bike Rear Hub

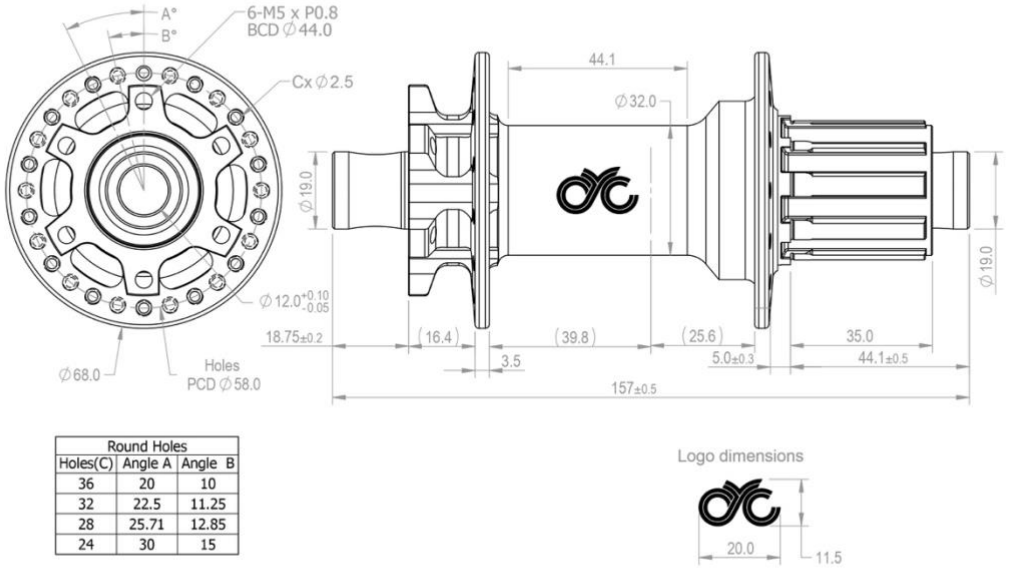
- **Model:**
  - Bear Pawls BEB-00412P6A (148*12)
  - Bear Pawls BDH-00412P6A (157*12)
- **Spoke Configuration:** J-Bend
- **Disc Mount:** 6-Bolt
- **Hole Count:** 32
- **Gauge:** 14g
- **O.L.D.:** 148mm / 157mm
- **QR Type:** 12mm
- **Cassette:** 3-A/C/F
- **Bearing:** Penta
- **Engagement** Points: 24 (15 degrees) for quick power transfer.
- **Freehub Type:** Impel 24T ratchet-type, Steel Shimano HG.
- **Axle Type:** Steel thru-axle for increased strength.
- **Weight:** 417g
- **Technologies**
  - 6-bolt
  - 5 Sealed Bearing

148mm x 12mm



Round Holes		
Holes(C)	Angle A	Angle B
36	20	10
32	22.5	11.25
28	25.71	12.85
24	30	15

157mm x 12mm



Round Holes		
Holes(C)	Angle A	Angle B
36	20	10
32	22.5	11.25
28	25.71	12.85
24	30	15

Shifter

Microshift ADVENT Trail Pro Shifter

- **Model:** SL-M9295-ER
- **Speed:** 9-speed
- **Shifter Style:** Trail Trigger Pro
- **Side:** Right
- **Lever Pad:** Yes
- **Gear Indicator:** No
- **Type:** Single Click
- **Clamp Material:** Aluminum
- **Weight:** 122g

Derailleur

Microshift ADVENT Super Short Cage Clutch Derailleur

- **Model:** RD-M6195S
- **Speed:** 9-speed
- **Cage length:** super short cage
- **Max Cog:** 34T-38T
- **Capacity:** 27T
- **Clutch:** Yes
- **Cage Material:** Steel
- **Outer Link Material:** Aluminum
- **Weight:** 360g

Chain

KMC e9 Turbo EPT Chain

- **Model:** KMC e9 Turbo EPT
- **Size:** 1/2"x11/128"x136 Links
- **Coating:** EPT (Anti-rust)
- **Weight:** ~300g

Compatibility Chart

Cassette	Compatible with Shimano HG freehub bodies
Rear Hub	Compatible with 12x148mm, 12x157mm frames; convertible to 150mm with axle kit
Shifter	Compatible with Microshift ADVENT systems *Not compatible with Shimano or SRAM*
Derailleur	Compatible with 5-speed to 9-speed systems Compatible with ADVENT shifters only
Chain	Compatible with 9-speed drivetrains

WARRANTY AND SERVICE

Warranty Policy

Register for warranty by scanning the QR code and submitting the form or via the link below:
https://wkf.ms/3tMcDa0

This product has a 6-month warranty period covering manufacturing defects only. Terms and conditions apply. Please visit www.cycmotor.com/refund-and-return-policy for more information.

Purchases From a CYC Dealer

CYC authorized dealers may have different terms and conditions. If you are experiencing any issues with your item/s and did not purchase the product directly from CYC, kindly consult the appropriate dealer for assistance.

How to Obtain Warranty Service

For any information or assistance, please contact us directly at www.cycmotor.com/contact-us or consult a CYC authorized dealer.

DISCLAIMER

The Heavy-Duty Drivetrain described in this user manual is designed specifically for use as a bicycle drivetrain system. It is essential to read and understand this manual before installation and use to ensure proper operation and longevity of the drivetrain components.

The manufacturer of the HD Drivetrain will not be held liable for any direct, indirect, incidental, or consequential damage resulting from the use or misuse of this system. Users are solely responsible for their safety while operating their bicycles and assume all risks associated with the use of this drivetrain.