VERSION 1.0 | APRIL 2019 | MY20
OWNER'S MANUAL - ENGLISH

NuVinci OPTIMIZED™

eniolo

The Moving Standard for

City
Trekking
Sportive
Cargo
Commercial

bikes.

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enviolo

The Moving Standard.

Introduction

We are excited to see that you have decided on the new moving standard with our enviolo shi ing solution containing the NuVinci® technology. By selecting this internal gear hub solution, you are ensuring a low maintenance product life cycle combined with an unrivalled ease of use controls functionality to give you the best ride performance available.

This owner's manual will quickly guide you through the initial steps of se ing up your bike (or eBike), o ers you tips and tricks in case of required maintenance, and ensures you know all the features, in order to get the most out of your ride experience.

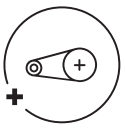
Our stepless technology o ers an in nite number of ratios inside its wide ratio range and will enable you to focus on the important aspects of a ride, like inner-city tra c or the scenery, while being able to shi under load in any ride condition.

Enjoy your ride with enviolo, the new moving standard!

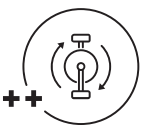
Near Silent

Stepless shifting

Effortless shifting, even under load



Greater gear ratio range than many conventional shifting systems*



Comfortable pedaling at your desired preset cadence**

Full integration with eBike drive and no additional shifter***

* available with enviolo manual

** available with enviolo automatic

*** available with enviolo automatic integrated

For Your Safety

Please read the entire manual and pay special attention to all safety warnings before use, replacement of components or installation of enviolo components. Failure to follow the warnings or improper installation, set up, modification, or maintenance may result in material damage or in personal injury. Save all safety warnings and instructions for future reference.

Designated Use

Our 5 groupsets are designed specifically towards the rider needs and meet the attributes of the specific segments as highlighted in the chart below.

Product	Type of Bicycle	Type of Use	Allowable Ride Conditions	Minimum Sprocket Ratio Limit (Pedal/eBike)	Max Motor Torque (Continuous/peak) at Bottom Bracket	Max Nominal Power	Max Gross Vehicle Weight
enviolo CT			Riding on paved surface with the tires always on the ground.	1.8/(250W) 2.1	50 Nm/75 Nm	250W	160kg
enviolo TR	Trekking, Urban, Cross, Commuter		Riding on paved surface or gravel roads or groomed trails with low-angle grades.	1.8/(250W) 2.0	75 Nm/90 Nm	250W	180kg
enviolo SP	Cross, Sportive, Cross-Country Hardtail		Riding on paved surface or gravel roads or forest paths and smooth technical trails including small obstacles with low-angle grades and drop offs less than 12" (30cm). It is not intended for steep or rough terrain. Can be used for commercial application.	1.8/(250W) 2.0	100 Nm/100 Nm	250W	160kg
enviolo SP	Speed Pedelec		Riding on paved surface or gravel roads or groomed trails with low-angle grades.	1.8/(up to 350W) 2.0	75 Nm/75 Nm	350W	160kg
enviolo SP	Speed Pedelec		Riding on paved surface or gravel roads without any drop offs. Can be used for commercial application.	1.8/(up to 500W) 2.0	50 Nm/50 Nm	500W	160kg
enviolo CO	City, Urban, Commuter		Riding on paved surface with the tires always on the ground. Can be used for commercial applications.	1.8/(250W) 2.1	50 Nm/75 Nm	250W	160kg
enviolo CA	Cargo, Delivery, Transport		Riding on paved surface or gravel roads without any drop offs. Can be used for commercial application.	1.8/(250W) 2.0	75 Nm/75 Nm	250W	240kg
enviolo CA	Cargo, Delivery, Transport		Riding on paved surface or gravel roads without any drop offs. Can be used for commercial application.	1.8/(350W) 2.0	75 Nm/75 Nm	350W	200kg

Check the proper setup of the system before every ride to ensure a safe ride. If you discover any defects, these must be immediately corrected by your bicycle dealer. If any parts need to be replaced, make sure only original parts are used to ensure your own safety and to maintain the high level product quality.

We recommend to follow a customer service inspection, which can identify material fatigue at an early stage and ensures your safety.

Safety Notices

The following safety symbols identify the levels of danger and must be observed throughout this document:

Attention	Caution	Danger	Warning
This notice warns you about potential damage to material.	This notice warns you about a dangerous situation which can lead to minor or slight injury if not avoided.	This notice warns you about a dangerous situation which can lead to slight injury if not avoided.	This notice warns you about a dangerous situation which can lead to serious or fatal injury if not avoided.

Do not open our components yourself. All components have to be maintained by trained service staff.

Components of Groupsets

Our high-tech components, designed specifically for their use cases, offer unrivaled possibilities.

Components of Groupsets

City, Trekking, Sportive, Cargo, Commercial

	CT	TR	SP	CA	CO
Internal gear hub					
MANUAL	Each manual system is comprised of an internal gear hub with the NuVinci® internal gear hub technology, a front shi er, a hub interface, and the according mounting hardware.				
AUTOMATIC	Each automatic system is comprised of an internal gear hub with the NuVinci® internal gear hub technology, a hub interface, a power cable, two sensor discs and the according mounting hardware.				
AUTOMATIC+					

Components of Groupsets

enviolo MANUAL

City, Trekking, Sportive, Cargo, Commercial

Compatibility Matrix

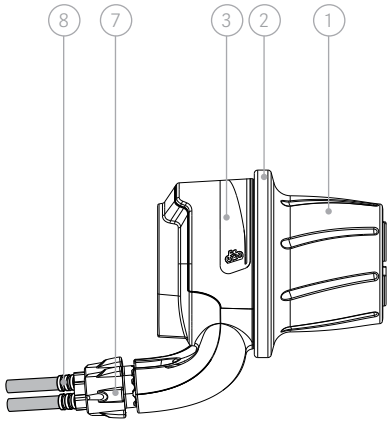
MANUAL	✓ ✓	○ ○	○ ✕	○ ✕	○ ○
	○ ○	✓ ✓	○ ✕	○ ✕	○ ○
	○ ✕	○ ✕	✓ ✓	○ ○	○ ✕
	○ ✕	○ ✕	○ ○	✓ ✓	○ ✕
	○ ○	○ ○	○ ✕	○ ✕	✓ ✓
AUTOMATIC	✓	✓	✓	✓	✓
AUTOMATIC+	✓	✓	✓	✓	✓

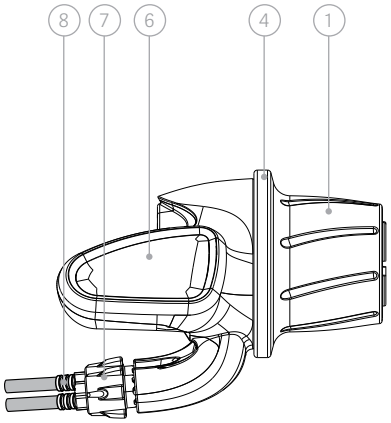
○ Compatible ✓ Recommended ✕ Not Compatible

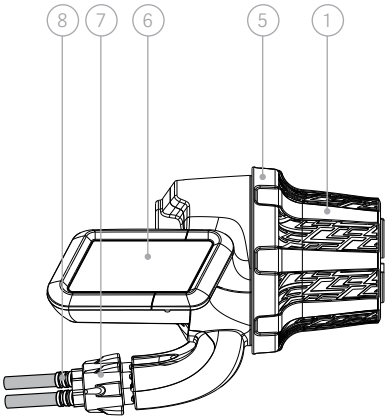
Manual System Components

Each manual system is comprised of an internal gear hub with the NuVinci® internal gear hub technology, a front shifter, a hub interface, and the according mounting hardware.

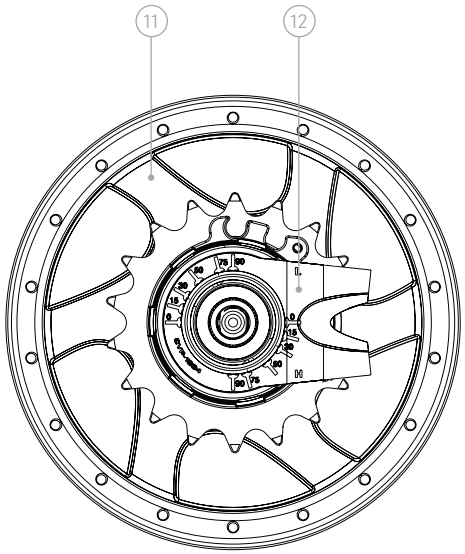
1. Controller grip
2. enviolo CT/CA/CO
3. Indicator graphic
4. enviolo TR
5. enviolo SP
6. Display
7. Barrel adjuster
8. Cable housing
9. Axle nuts
10. No-turn washer
11. CT/TR/CO hub
12. Manual Hub Interface

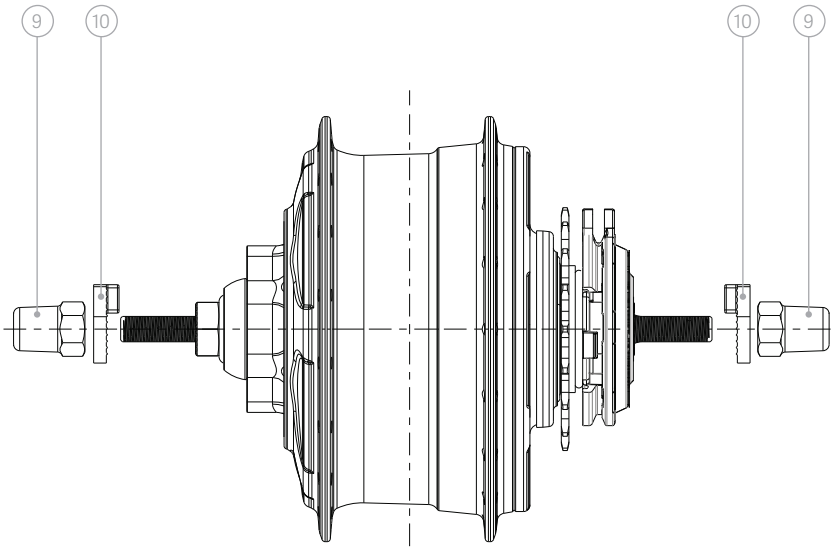






enviolo CT/TR/CO Internal Gear Hub

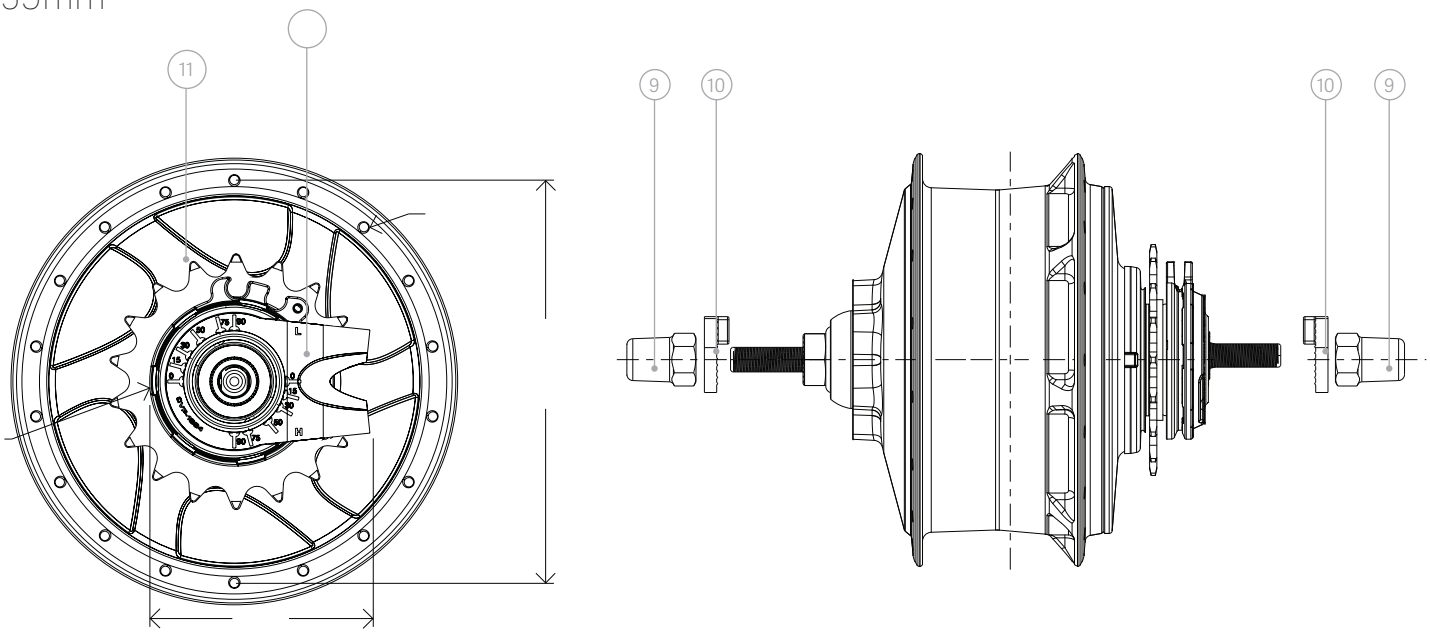




Manual System Components

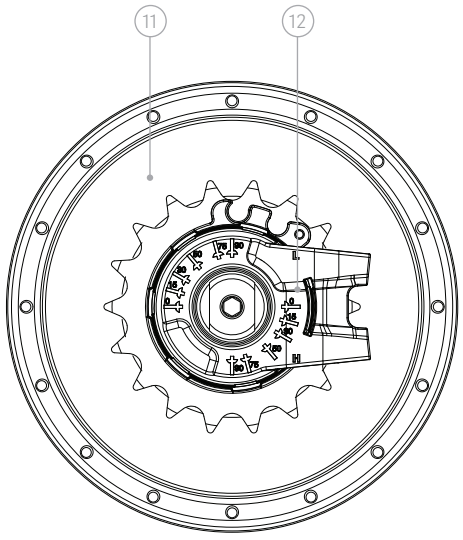
enviolo CA Internal Gear Hub

135mm



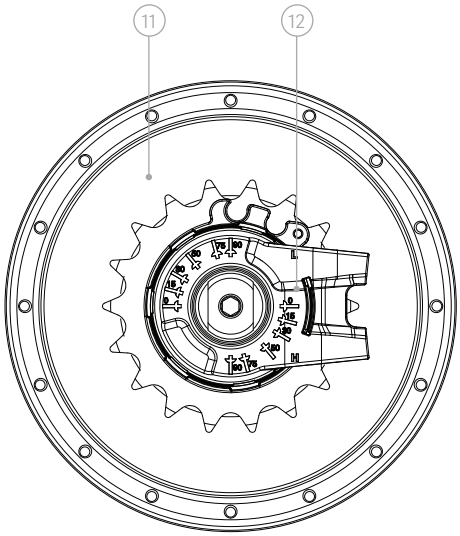
enviolo SP Internal Gear Hub

135mm

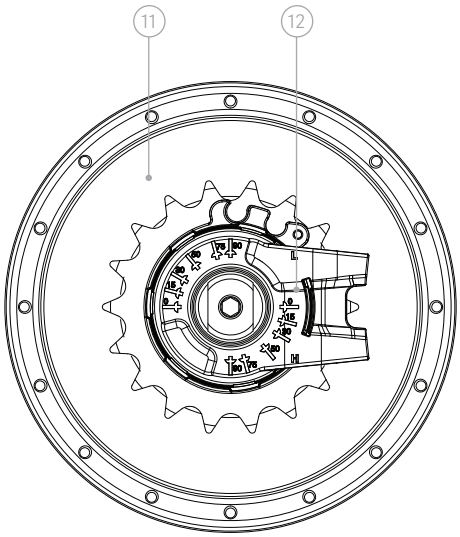


Manual System Components

enviolo SP Internal Gear Hub
142mm

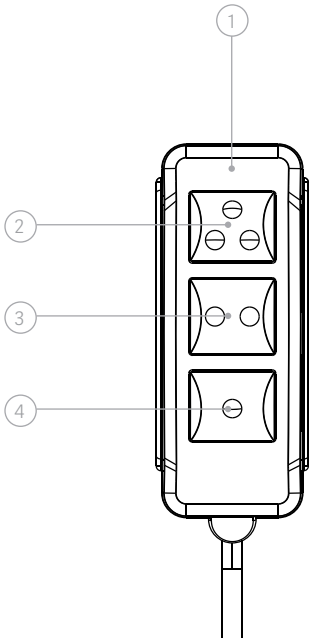


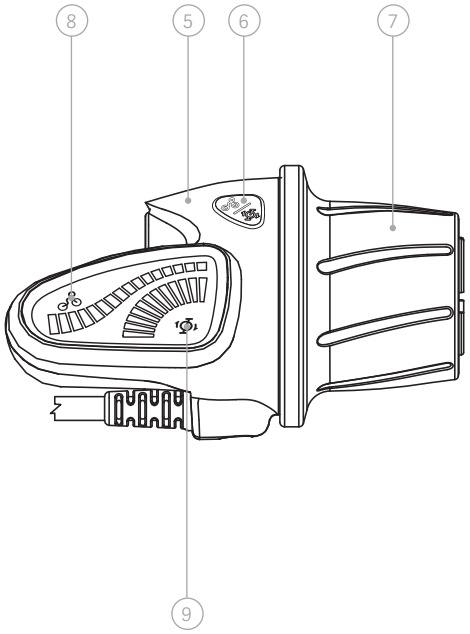
enviolo SP Internal Gear Hub
148mm



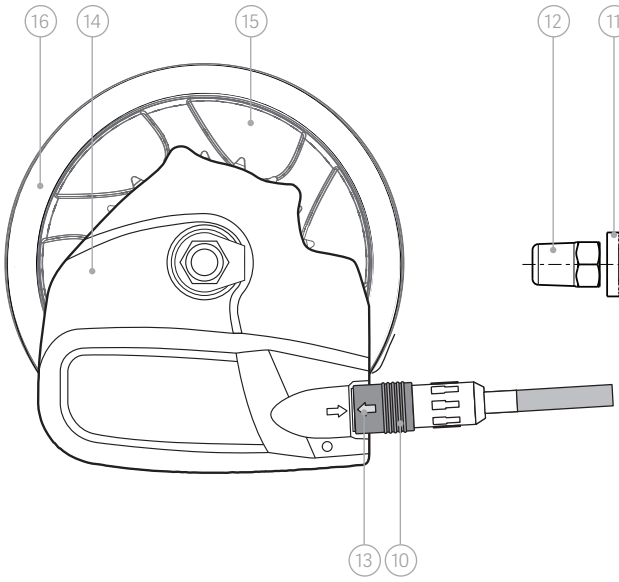
Automatic System Components

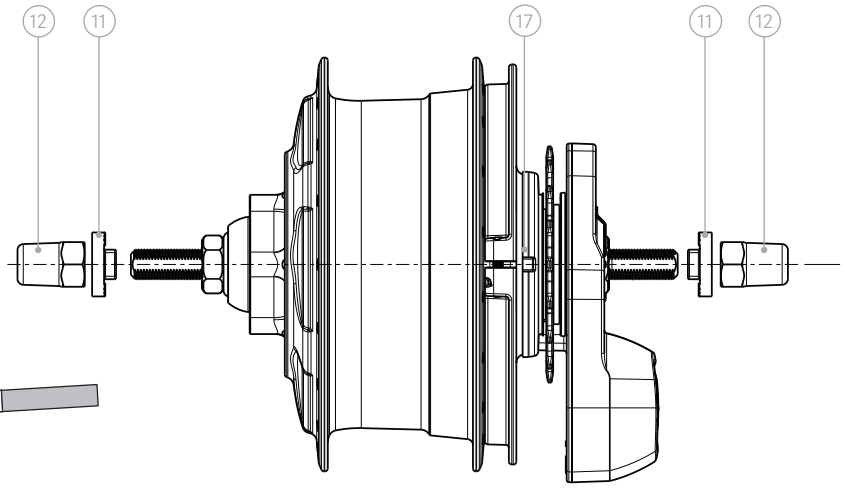
Each automatic system is comprised of an internal gear hub with the NuVinci® internal gear hub technology, a controller, a hub interface, a power cable, two sensor discs and the according mounting hardware. Depending on if you use the Automatic+ (without) or Automatic system (with), you will have an additional handlebar controller.





1. Automatic 3-button controller
2. Shifting button - fast
3. Shifting button - medium
4. Shifting button - slow
5. Automatic grip-shifter
6. Mode button
7. Grip
8. Manual mode
9. Automatic mode
10. Main connector (ripped location)
11. No-turn washer
12. Axle nuts
13. Main connector
14. Automatic(+) Hub Interface
15. CT/TR/CO hub
16. Output speed ring
17. Input speed ring





Technical Data

To make sure you use the best system possible for your application, you will find our product attributes on the next pages in this section.

Internal gear hub Speci cations

City, Trekking, Sportive, Cargo, Commercial

enviolo MANUAL

enviolo Internal gear hub	enviolo CT	enviolo TR	enviolo CO
Nominal ratio range	310% (0.55 - 1.7)	380% (0.5 - 1.90)	310% (0.55 - 1.7)
Max. peak torque	80 Nm*	90 Nm*	80 Nm*
Max. vehicle weight	160 kg*	180 kg*	160 kg*
Beltline (Gates)	45.5 +/- 0.5 mm	45.5 +/- 0.5 mm	45.5 +/- 0.5 mm
Sprocket sizes (chain)	16 - 22 T	16 - 22 T	16 - 22 T
Spoke options	32/36	32/36	32/36
IP classification	Hub = IP65, freewheel = IP54, Hub interface = IP54	Hub = IP65, freewheel = IP54, rear shifter = IP54	Hub = IP65, freewheel = IP54, rear shifter = IP54

enviolo Internal gear hub	enviolo SP	enviolo CA
Nominal ratio range	380% (0.5 - 1.90)	380% (0.5 - 1.90)
Max. peak torque	120 Nm*	100 Nm*
Max. vehicle weight	280 kg*	180 kg*
Beltline (Gates)	135 & 142 mm = 45.5 +/- 0.5 mm 148 mm = 48.7 +/- 0.5 mm	135 mm = 45.5 +/- 0.5 mm
Sprocket sizes (chain)	16 - 22 T	16 - 22 T
Spoke options	32/36	32/36
IP classification	Hub = IP65, freewheel = IP54, rear shifter = IP54	Hub = IP65, freewheel = IP54, rear shifter = IP54

*Further details can be found on page 40

Controller Speci cations

City, Trekking, Sportive, Cargo, Commercial

enviolo MANUAL

enviolo Manual Controller	enviolo CT	enviolo CA	enviolo CO
Grip rotation options*	240°	270°	240°
Cable housing	Full cable housing recommended, dual cable route	Full cable housing recommended, dual cable route	Full cable housing recommended, dual cable route
Compatible with all hubs	Yes	Yes	Yes
Grip Material	Standard	Extended Durability	Extended Durability

enviolo Manual Controller	enviolo TR	enviolo SP
Grip rotation options*	123°	123°
Cable housing	Full cable housing recommended, dual cable route	Full cable housing recommended, dual cable route
Compatible with all hubs	Yes	Yes
Grip Material	Standard	Standard

* Grip rotation options and controllers are interchangeable with all Internal gear hubs

Automatic Hub Interface

City, Trekking, Sportive, Cargo, Commercial

enviolo AUTOMATIC

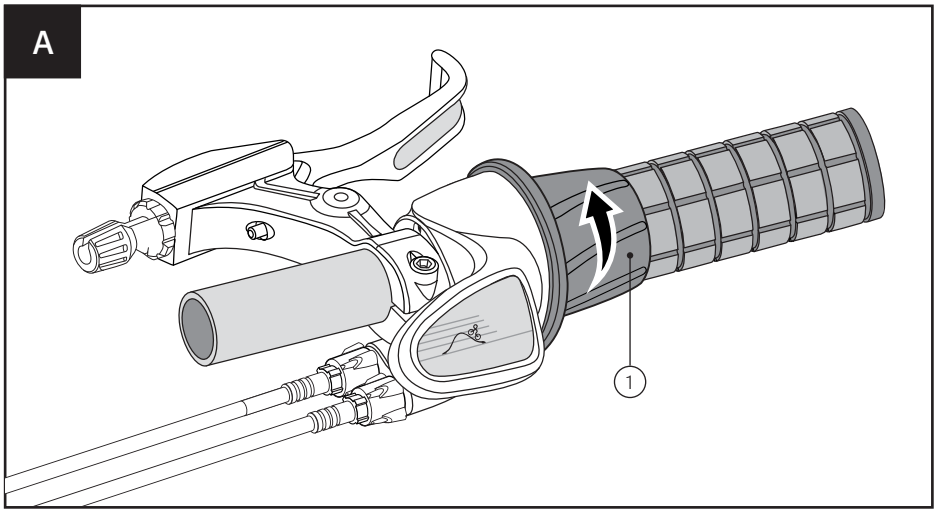
enviolo Automatic Hub Interfaces	Automatic	Automatic+
Compatible with all internal gear hubs	Yes	Yes
Electrical specifications:		
Max. voltage	48 V	48 V
Built-in fuse protection	5 A	5 A
Average power consumption	2 - 5 W	2 - 5 W
Shut-down protection	Data is saved at shutdown	Data is saved at shutdown
Power consumption Sleep mode	0.4 W (36 V system)	0.4 W (36 V system)
Wiring:		
Connector Ø on HHI	10 pin = 15.5 mm, 6 pin	6 pin = 12.6 mm
Connector Ø to power source	10.2 X 14.2 mm	10.2 X 14.2 mm

Quick Start Guide

To get you on the bike quickly and let you experience our technology first hand, we have condensed the most important information on the next several pages.

Enjoy the ride!

A



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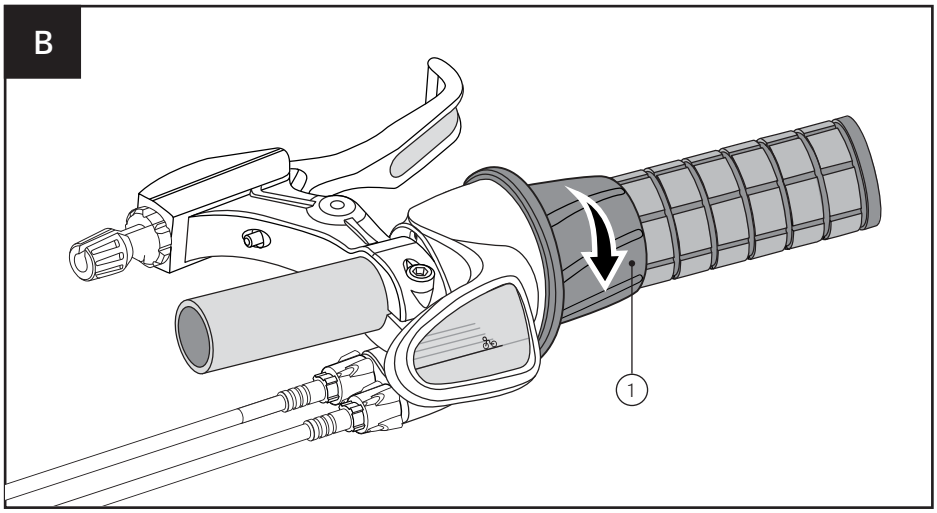

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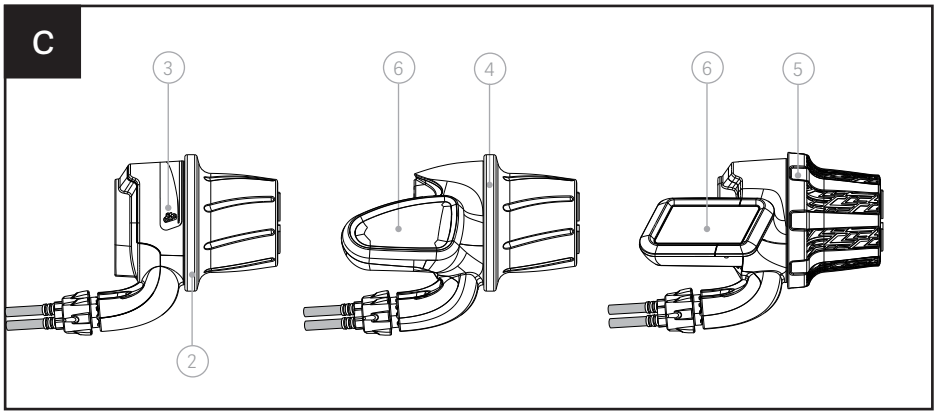


1. Shi ing

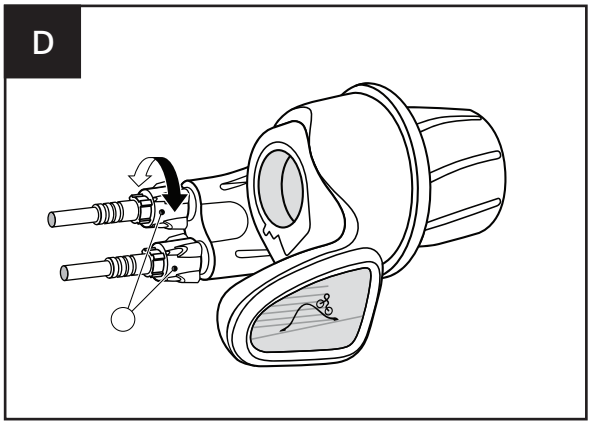
SHIFTING WHILE RIDING

- [A] Shi into low ratios for starting or climbing, rotate the controller grip (1) clockwise.
- [B] Shi into high ratios for higher speeds rotate the controller grip (1) counterclockwise.
- [C] **Orientation:**
  - enviolo CT/CO/CA controller (2) simpli ed indicator graphic (3) on the housing for your orientation.
  - enviolo TR (4)/enviolo SP (5) controller display (6) with a unique shi indicator, which shows the chosen ratio.

SHIFTING WHILE STOPPED

- enviolo's hubs with NuVinci® technology cannot be shi ed completely through the ratio range while stopped.
- 50-70% of the shi range is typically accessible, with the remainder accessible with very li le pedal rotation.

D



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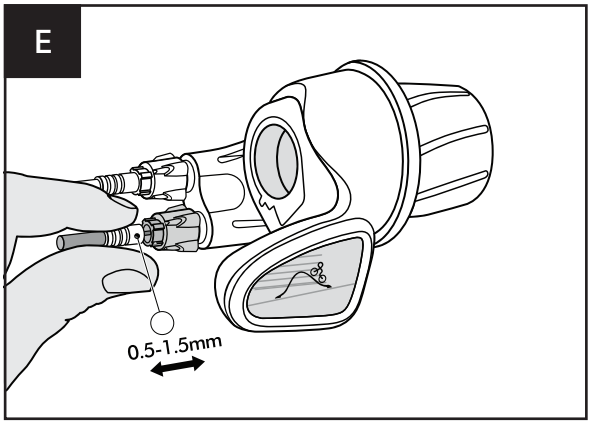


2. Adjusting Cable Slack

- [D] Cable slack can be adjusted with the barrel adjusters (7) at the controller.
- [E] Cable slack can be determined by pulling lightly on the cable housing (8) at the controller and noticing any slack. ~0.5mm of slack is ideal.
- Cable slack of more than 2.0mm may cause decreased shi performance and shi cable durability.
- For rear wheel removal, additional cable slack may be desired to ease shi cable hardware removal, which can be obtained with the barrel adjusters (7).

3. Upgrading the system

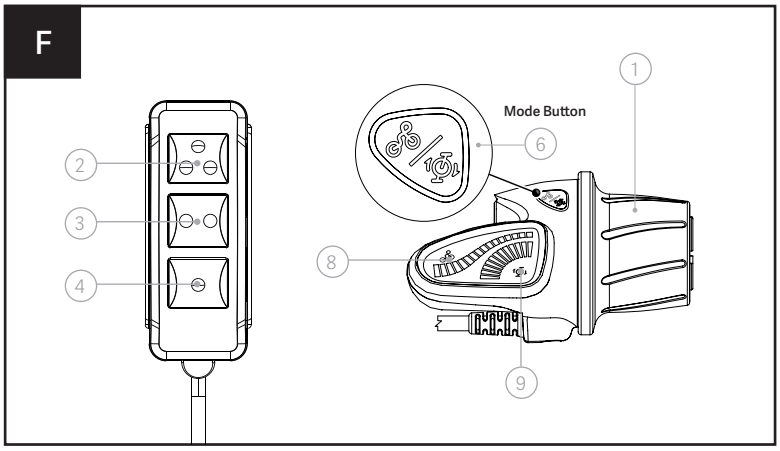
Alternative controllers and manual hub interface solutions are available, as all controllers can be used for all internal gear hub variants (see overview on page 8). In addition the manual hub interface o ers multi-turn or one-turn options based on your desires to have more direct or more ne-tuned ratio shi steps. Contact your local retailer or enviolo Service & Support for more details.

1. System Functionality

The Automatic system provides automatic shi ing for the rider at all times. It can be utilized with either the 3-bu on option, which makes automatic shi ing as simple as pressing a bu on (2,3,4) to choose your pedal cadence or the grip shi er, which o ers both fully automatic and manual shi ing options. With the grip shi er the rider has the option to switch between “manual” and “automatic” modes by pressing the “mode” bu on (6) on the controller housing.

The NuVinci Optimized™ internal gear hub can not be shi ed completely through the ratio range while stationary. The Automatic system will intelligently wait for pedaling or wheel movement if wide ratio ranges are commanded while stationary.

F



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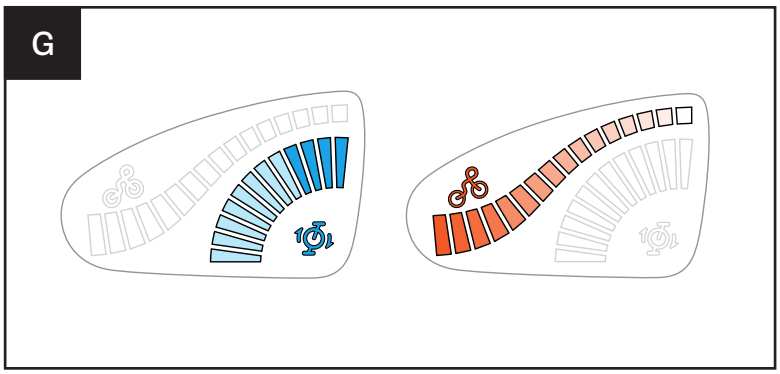


2. Setup

[F] 3-BUTTON CONTROLLER

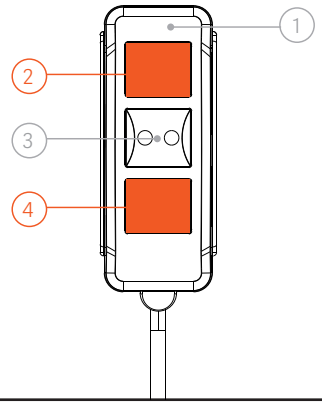
On the 3-bu on controller the pre-se ings are completed through the desktop so ware at the retailer. Typically the 3-bu ons are assigned (slow (4), medium (3), and (2) fast (2)) according to the bike type and gearing speci cation.

[F] + [G] GRIP SHIFTER

In automatic mode the system automatcally adjusts the ratio to maintain the rider´s preferred cadence. The rider can shoose their ideal cadence se ing by rotating the grip (1). The blue LED “RPM” display indicates the cadence se ing (9).

In manual mode the rider is able to shi on their own electronically. Like the manual controller the steeper the “hill” on the LED display (8), the lower the ratio for climbing.

H



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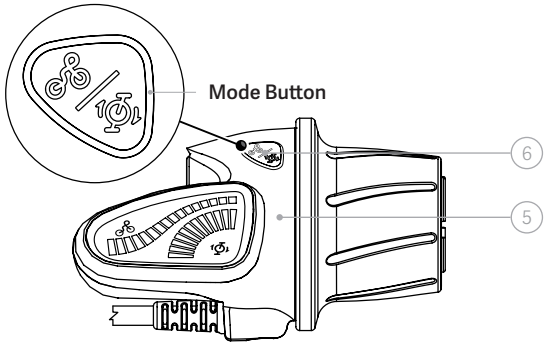


3. Calibration

On the first set up or after system maintenance or incorrect functionality the system has to be calibrated.

[H] 3-BUTTON CONTROLLER

1. Turn system power on.
2. Pedal the bicycle lightly through the entire calibration process (preferable on a stand with the rear wheel o the ground).
3. On the 3-bu on controller (1), press and hold the top (2) and bo om (4) bu ons simultaneously until the rear hub begins shi ing (5-7 seconds), then release the bu ons.
4. Continue to pedal lightly through the entire calibration procedure, while the system shi s from “low” to “high” ratio multiple times and completes calibration.

[I] GRIP SHIFTER

1. Turn system power on.
2. On the Grip shi er controller (5), press and hold the “mode” bu on (6) until the rear hub begins shi ing (5-7 seconds), then release the bu on.
3. Pedal the bicycle lightly through the entire calibration procedure (preferable on a stand with the rear wheel o the ground), while the system shi s from “low” to “high” ratio multiple times and completes calibration.

4. Upgrading the system

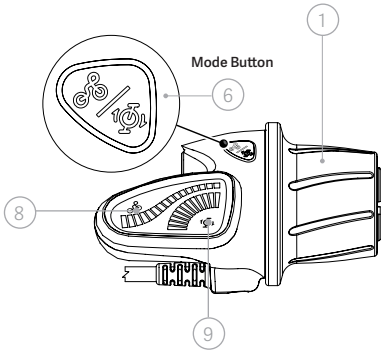
Alternative controllers are available, as all controllers can be used for all hub variants. Based on your desires to have a cleaner handlebar or more exibility while riding you can switch to either the 3-bu on or the grip shi solutions. Contact your local retailer or enviolo Service & Support for more details.

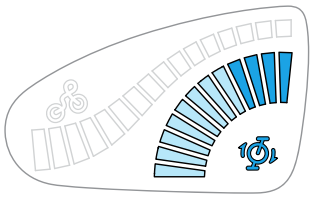
Quick Start Guide
AUTOMATIC+

1. System Functionality

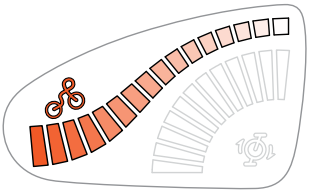
The Automatic+ system is integrated within the eBike drive system and provides automatic shi ing for the rider at all times. It can be utilized with the drive system remote controller, which usually o ers both fully automatic and manual shi ing options. If supported by the drive system, the rider has the option to switch between “manual” and “automatic” modes by pressing the “mode” bu on (6) on the controller housing. For details, please look at your drive system manual, since the integration is handled di erently by type of drive system.

The NuVinci Optimized™ internal gear hub can not be shi ed completely through the ratio range while stationary. The Automatic system will intelligently wait for pedaling or wheel movement if wide ratio ranges are commanded while stationary.





Automatic Mode



Manual Mode

2. Setup

Automatic Mode

In automatic mode the system automatically adjusts the ratio to maintain the rider´s preferred cadence. The rider can choose their ideal cadence se ing through selection in the eBike drive system menu.

Manual Mode

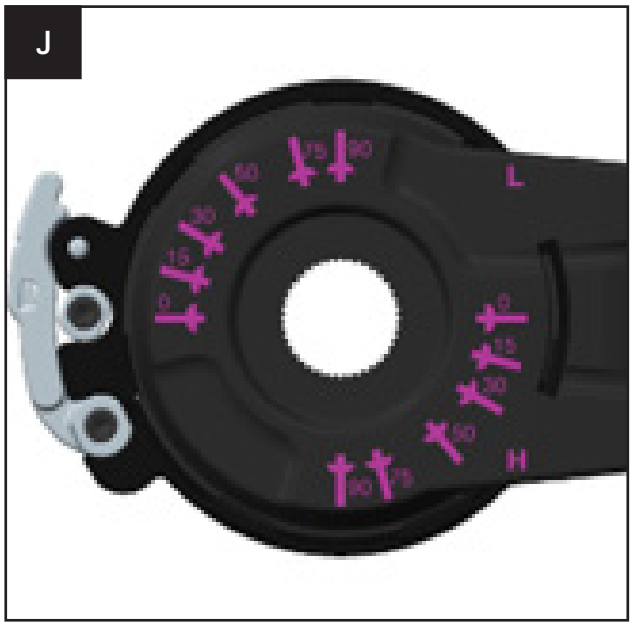
In manual mode the rider is able to shi on their own electronically. The eBike drive system usually integrated this functionality by simulating gears.

3. Calibration

On the rst set up or a er system maintenance or incorrect functionality the system has to be calibrated.

1. Turn system power on.
2. Initiate the calibration process through the drive system menu. For details review the eBike drive system manual.
3. Pedal the bicycle lightly through the entire calibration procedure (preferable on a stand with the rear wheel o the ground), while the system shi s from “low” to “high” ratio multiple times and completes calibration.

3. Calibration continued



[J] enviolo automatic+ calibration - Bosch Intuvia

When
- A er enviolo automatic+ assembly;
- A er rmware update;
- When system functions are not appropriate.

How to - for Intuvia
- Turn on the Bosch Intuvia system.
- Activate the "con guration mode" through simultaneous push and hold of [RESET] and [i] bu ons (A).
- Push the [i] bu on, until you can see "gear calibration" on the screen.
- Li up the rear wheel and pedal fast and easy.
- While pedaling, press the "Light" bu on (B) to start calibration
- Continue to pedal while the system shi s from full overdrive to full underdrive several times to complete the calibration process.
- A er completion of the calibration process, the system returns to the ride mode automatically.

[K] enviolo automatic + calibration - Bosch Nyon

When
- A er enviolo automatic + assembly;
- A er rmware update;
- When system functions are not appropriate.

How to - for Nyon
- Turn on the Bosch Nyon system.
- Enter the menu by moving the joystick to the le .
- Select "Se ings" and con rm by pressing the joystick.
- Select "My eBike" and con rm by pressing the joystick.
- Select "eShi (NuVinci)" and con rm by pressing the joystick.
- Select "Gear calibration" and con rm by pressing the joystick.
- Li up the rear wheel and pedal fast and easy.
- While pedaling, select "Continue" by pressing the joystick to start the calibration.
- Continue to pedal while the system shi s from full overdrive to full underdrive several times to complete the calibration process and the screen indicates "Gear calibration successful".
- A er completion of the calibration process exit the menu.

[L] enviolo automatic+ Calibration - Flyer FIT

When

- A er enviolo automatic+ assembly;
- A er rmware update;
- When system functions are not appropriate.

How

- Turn on the Flyer system.
- Enter the setup menu using the joystick.
- Select "Calibration" and con rm by pressing the joystick.
- Select "Calibrate NuVinci" and con rm by pressing the joystick.
- Li up the rear wheel and pedal fast and easy.
- Start calibration by pressing the joystick again.
- Continue to pedal while the system shi s from full overdrive to full underdrive several times to complete the calibration process and the screen indicates "Calibration succeeded".

Care and Maintenance

Care and Maintenance
CLEANING AND LUBRICATION, TRANSPORT AND STORAGE

enviolo

1. Cleaning

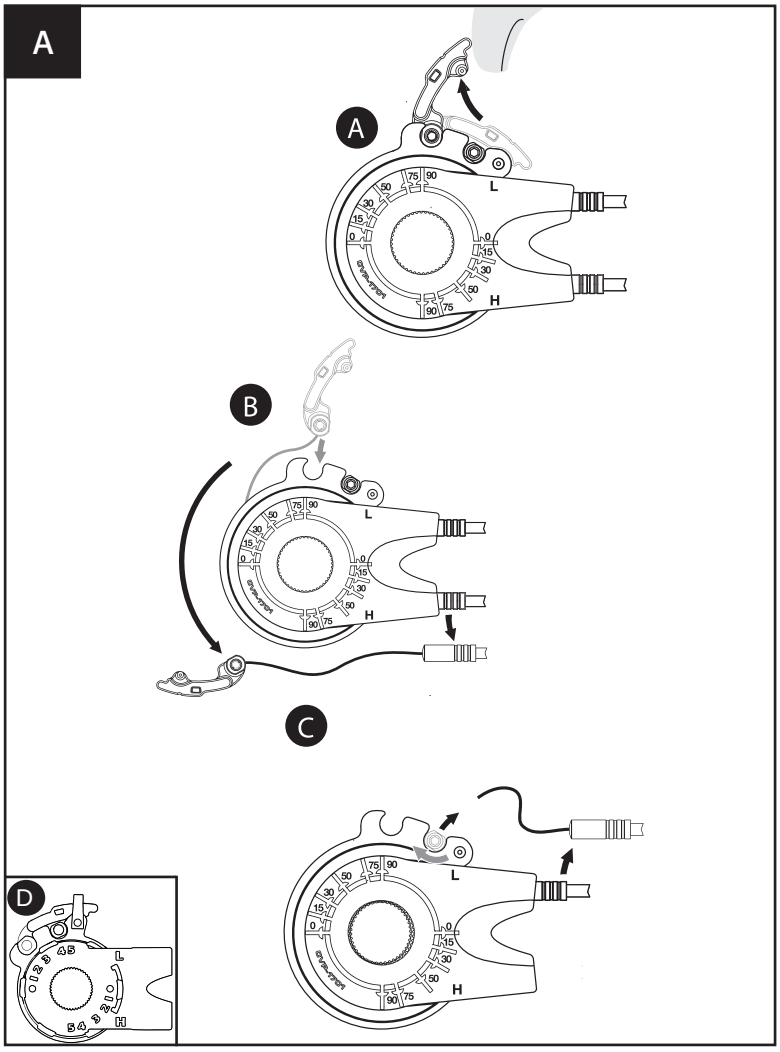
- Your enviolo components are sealed and well protected from the external environment. However do not use water under pressure (such as pressure washers or water jets) for cleaning to prevent malfunctions due to water penetration.
- During the winter season, you should clean your bicycle in shorter intervals, so that winter road salt cannot cause any damage.
- Do not use aggressive cleaners.
- Check the mounting bolts from time to time.

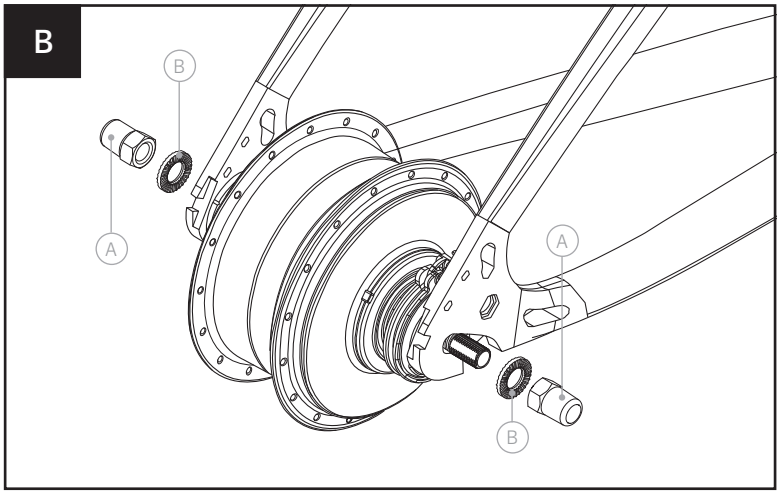
2. Lubrication

- The enviolo internal gear hubs are provided with permanent lubrication and the internal gear hub is maintenance-free for the life of the product.
- The internal freewheel mechanism is serviceable. Regular lubrication will extend the chain´s service life.

3. Transport & Storage

- Do not store your enviolo components at ambient temperatures below -20°C or above 48°C.





4. Disconnecting the Rear Wheel for Manual Variants

1. Shi to a position that allows easy access to the shi cable hardware.

2. [A] Remove shi cable hardware following steps (A, B and C). Using the one-turn interface (D) you have to carefully push aside the snap feature to remove the shi cable hardware.

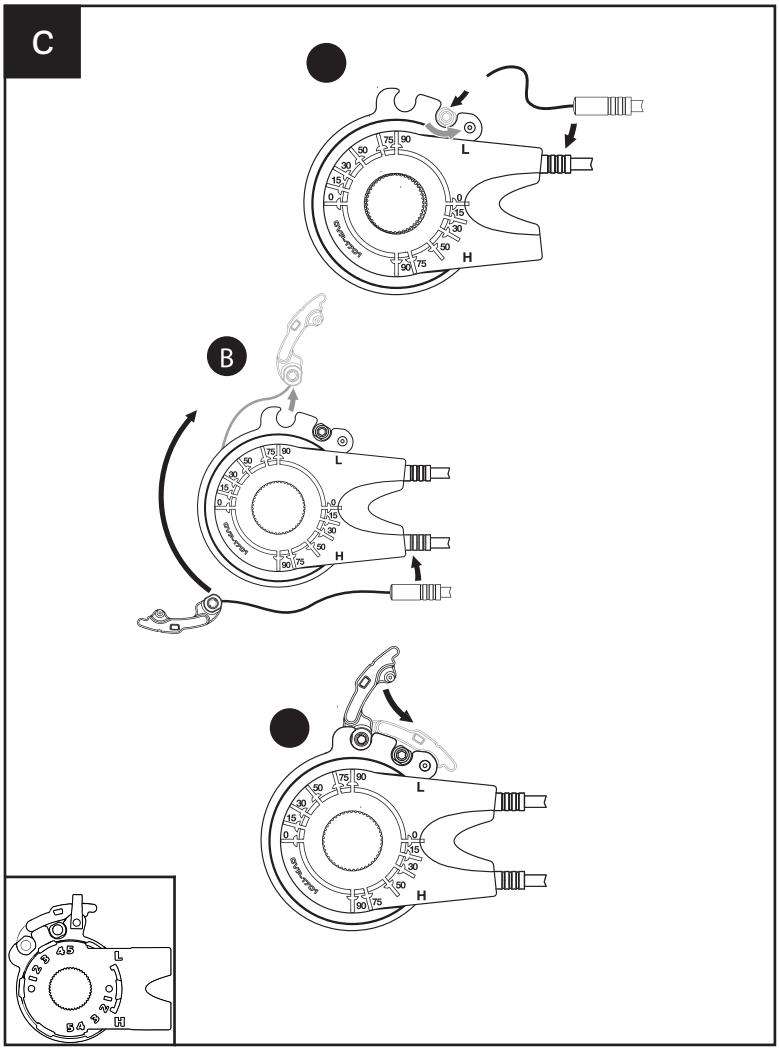
3a. [B] For the variants enviolo CT/TR/CO/CA
Loosen and/or remove the axle nuts (A), followed by the no turn washers.
For rim and roller applications follow the manufacturer´s instructions.

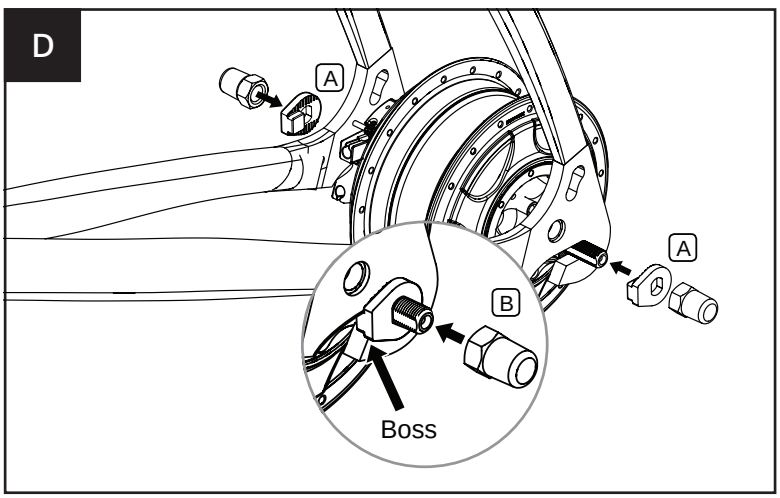
3b. For the variants enviolo SP:
1135mm variants: Loosen and remove the axle bolts and washers.
For rim brake applications follow the manufacturer´s instructions.

2142/148mm variants: Loosen and remove the axle bolts and le side adapter.
For rim brake applications follow the manufacturer´s instructions.

4. Remove the rear wheel.

In some cases, it is easiest to remove the chain from the front chainring to ease the rear wheel removal.





5. Installing the Rear Wheel for Manual Variants

1. Place the rear wheel into the rear frame, making sure not to obstruct shi cables.

2a. [C] For the variants enviolo CT/TR/CO/CA:
Slide one no-turn washer (A) each onto each axle end. The serrations of the no-turn washer must bear against the dropout of the frame. The rectangular boss must engage in the dropout of the frame.

[D] Mount the axle nuts (B) and tighten to 30-40Nm (266-350 in-lbs).

2b. [C] For the variants enviolo SP:
For 135mm variants:
1. Place the rear wheel in the frame, the rectangular boss must engage in the dropout of the frame.
2. Install the washer and axle nuts and tighten to 30-40 Nm (266-350 in-lbs).

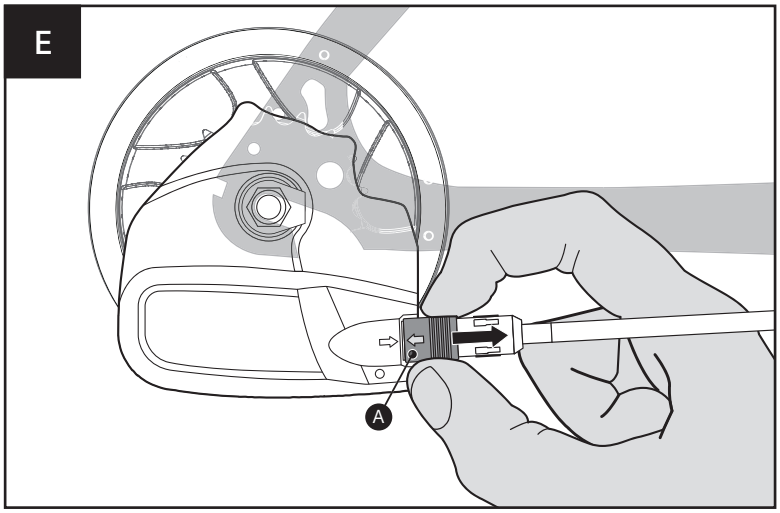
For 142/148mm variants:
1. Place the rear wheel in the frame, make sure the torque adapter plate slides into the boss on the brake adapter or dropout.
2. Install the le side adapter and axle bolts and tighten to 10-15 Nm (89-133 in-lbs).

For rim and roller brake applications, connect the rear brake according to the manufacturer´s instructions.

Improper installation of the no-turn washer may result in damage to the dropout and the hub.

Over-tightening may damage parts. Under-tightening can result in the axle sliding in the dropouts.

E



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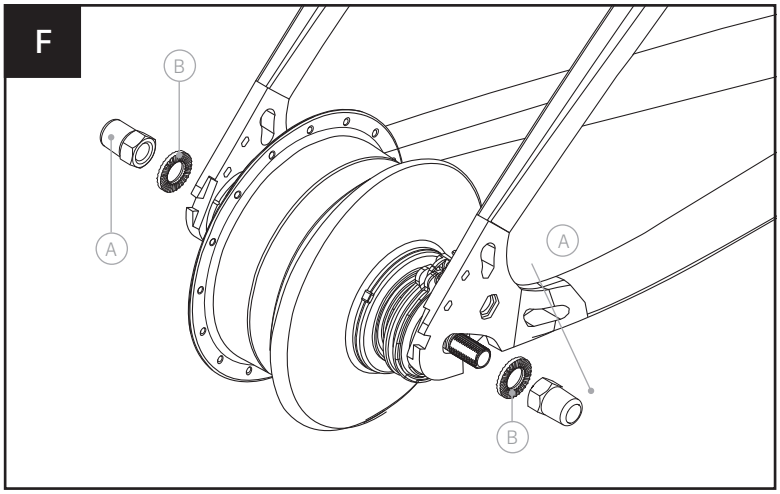

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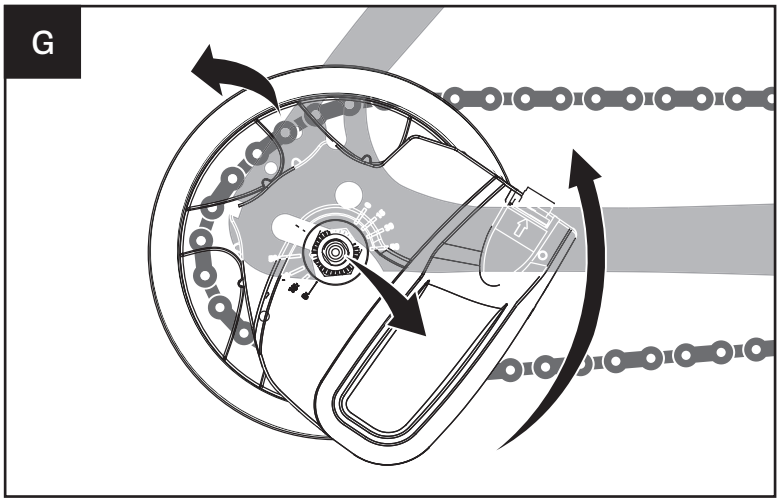


6. Disconnecting the Rear Wheel for Automatic Variants

1. Switch eBike power “o ” and disconnect the eBike ba ery (if possible).

2. [E] Remove the Automatic main connector at the rear wheel
   Grab the connector at the ribbed location (A) and pull lightly away from the Automatic hub interface the frame.

Do not pull on the cable, only at the ribbed connector hall as shown.

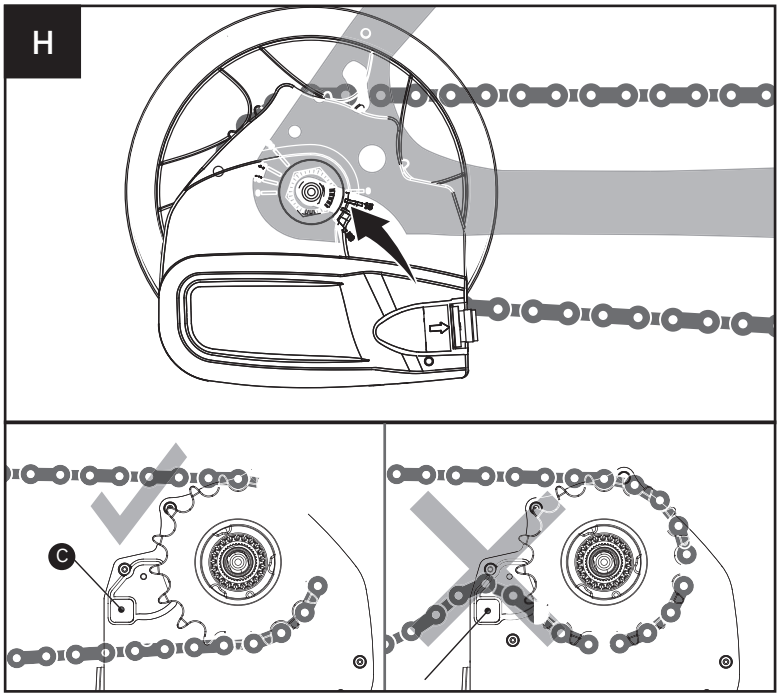
The connector supplies electrical power to the Automatic Hub Interface. Protect the connector from water or other conductive elements when disconnected, as shock or damage to the system could result.

3a. For the variants enviolo CT/TR/CO/CA:
[F] Loosen and/or remove the axle nuts (A), followed by the no turn washers.
For rim and roller applications follow the manufacturer´s instructions.

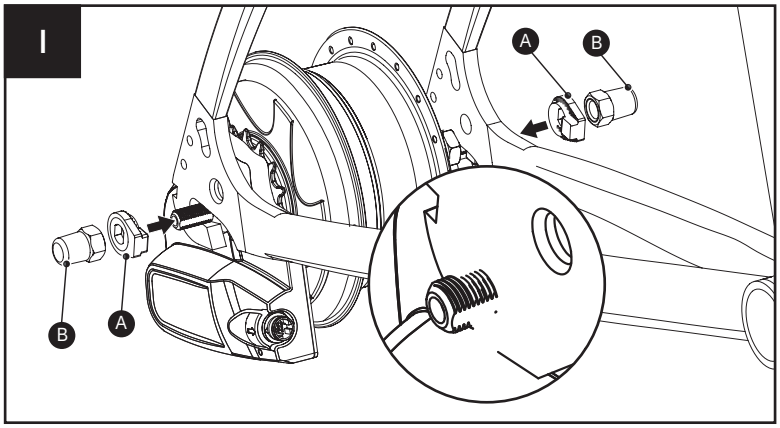
3b. For the variants enviolo SP:
1135mm variants: Loosen and remove the axle nuts and washers.
For rim brake applications follow the manufacturer´s instructions.
2142/148mm variants: Loosen and remove the axle bolts and le side adapter.
For rim brake applications follow the manufacturer´s instructions.

4. [G] Remove the rear wheel
Some eBikes may require rotating the hub axle and automatic hub interface to allow removal of the bicycle chain. In some cases, it is easiest to remove the chain from the front chainring to ease the rear wheel removal.

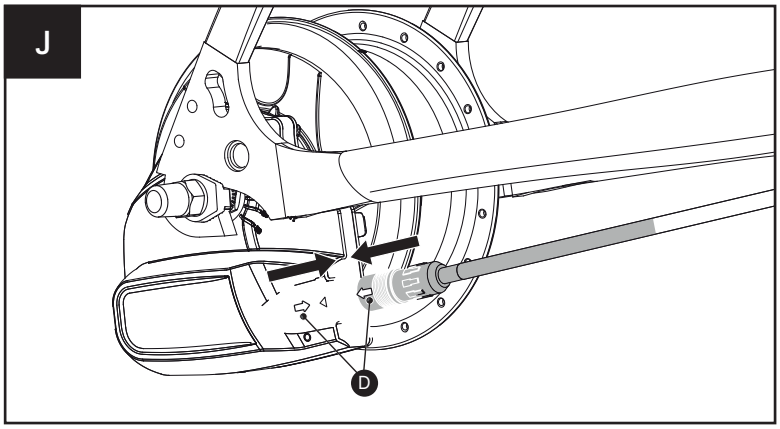
H



I



J



7. Installing the Rear Wheel for Automatic Variants

1. [H] Place the rear wheel into the rear frame, making sure not to obstruct or pinch the Automatic wire harness and main connector.

1A. Orient the chain around the automatic hub interface and onto the sprocket .

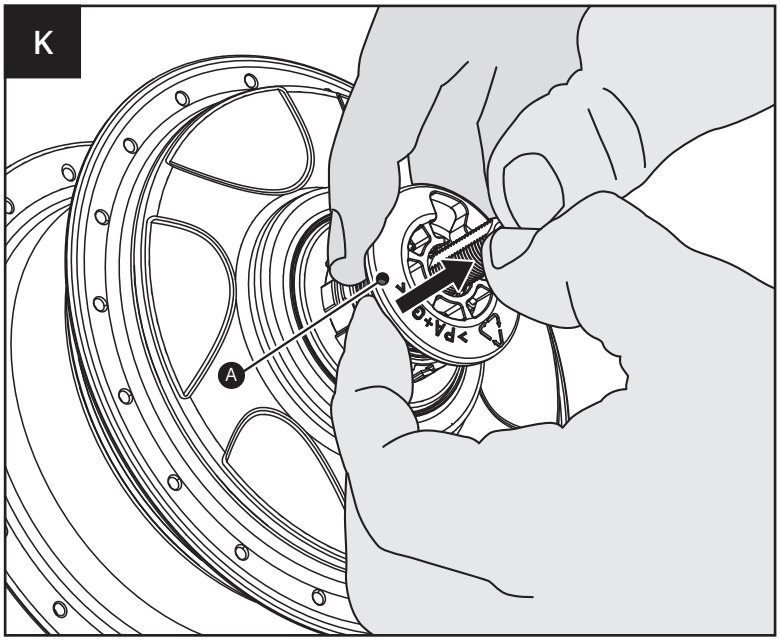
1B. In some cases, it is easiest to remove the chain from the front chainring to ease rear wheel installation.

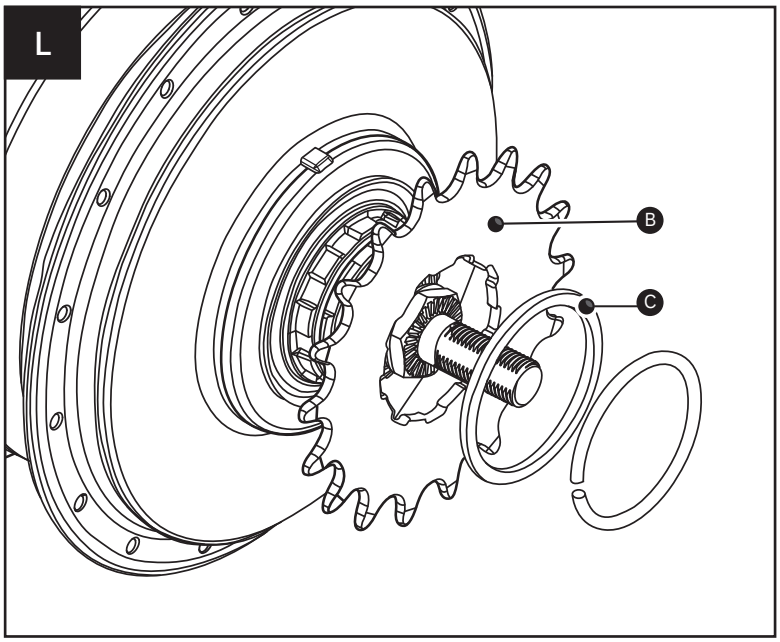
Locate the rear wheel speed sensor boss (C) on the Automatic Hub Interface. The chain should not catch on this sensor when ing the wheel.

2a. [I] For the variants enviolo CT/TR/CO/CA:
1. Slide one no-turn washer (A) each onto each axle end. The serrations of the no-turn washer must bear against the dropout of the frame. The rectangular boss must engage in the dropout of the frame.
2. [I] Mount the axle nuts (B) and tighten to 30-40 Nm (266-350 in-lbs).

2b. [II] For the variants enviolo SP:
For 135mm variants:
1. The rectangular boss must engage in the dropout of the frame.
2. Install the washers and axle nuts and tighten to 30-40 Nm (266-350 in-lbs).
For 142/148mm variants:
1. Make sure the torque adapter plate slides into the boss on the brake adapter or dropout.
2. Install the le side adapter and axle nuts and tighten to 10-15 Nm (89-133 in-lbs).
For rim and roller brake applications, connect the rear brake according to the manufacturer's instruction.

4. [J] Install the automatic main connector by lining up the arrows (D) and carefully pressing together.





8. Installing the Sprocket

1. [K] Remove the anti-shi retainer (A) by pulling rmly away from the enviolo internal gear hub.

2. [L] Install a standard 9-spline 3/32 inch (2.3mm) sprocket (B) with the at side facing the hub , followed by the supplied sprocket spacer (C, if required), and secure with the sprocket snap ring.

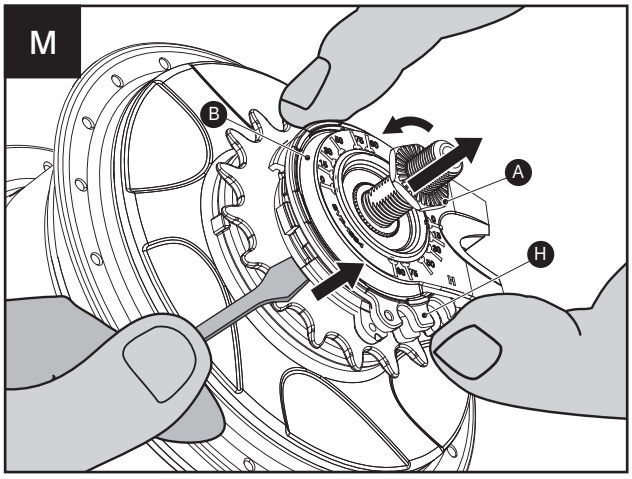
3. The sprocket spacer is intended for sprockets that are 3/32 inch (2.3mm) thick at the inner diameter. If the inner diameter is 0.17-0.18 inch (4.3-4.5mm) thick, like belt cogs, the spacer should not be used.

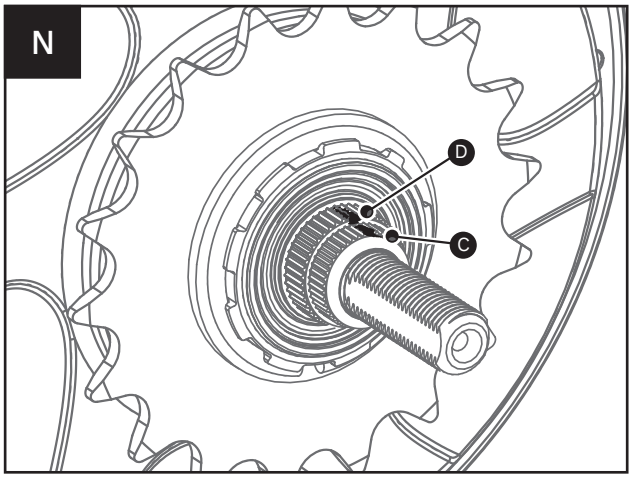
4. If you are using the enviolo CO hub you can also use a 3mm o set sprocket for single speed chains. The o set is facing inward, moving the chain closer to the internal gear hub.

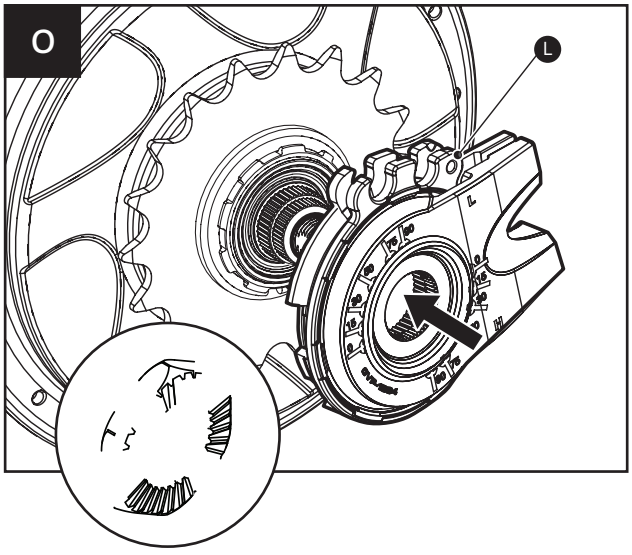
   All other enviolo hubs should only use 3/32 inch sprockets that are at on at least one side. If you use incompatible chains this can lead to interference with the hub interface and damage to hub components and may result in dangerous ride conditions for the rider.

5. The enviolo hubs are compatible with 16 to 28 tooth sprockets.

6. If a hub interface is not installed immediately following the sprocket, replace the anti-shi retainer (A).







9. Rese ing the internal gear hub to full overdrive

(only applicable to manual variants)

1. If the manual hub interface is incorrectly installed, full ratio range of the internal gear hub may be unavailable and full overdrive will need to be reset.

2. If installed on the bicycle, shi the hub into overdrive "H" as far as possible and remove the rear wheel per chapter 4.

3. [M] For enviolo CT/TR/CO/CA internal gear hubs
Remove the right hand nut (A) that secures the manual hub interface, then remove the manual hub interface (B) by li ing carefully from underneath.

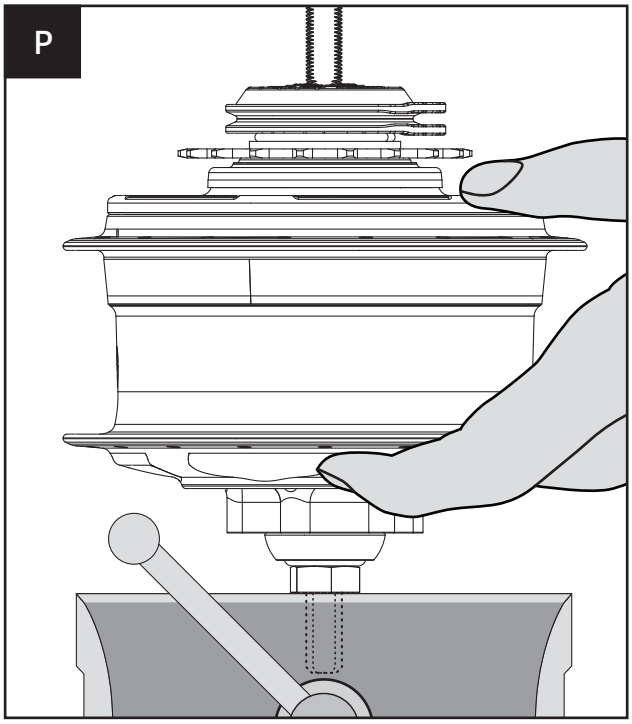
For enviolo SP Internal gear hub
Remove the right hand nut and axle screw that secure the manual hub interface, then remove the manual hub interface (B) by li ing carefully from underneath.

4. [N] If the spline nut (C) and shi drive (D) markings are not aligned, full overdrive will need to be reset.

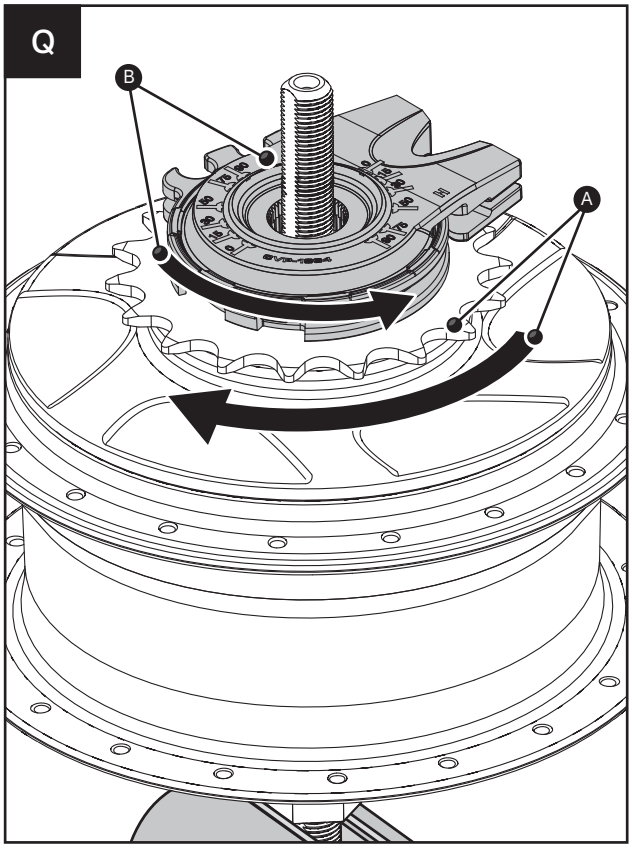
5. If the markings are not obvious, full overdrive depending on the internal gear hub should result in the hub/wheel rotating ~1.6-2 times for every rotation of the sprocket. Also see your internal gear hub speci cation for the corresponding full overdrive ratio.

6. [O] Set the manual hub interface to the full underdrive “L” position (note this is opposite of normal installation). Reinstall the manual hub interface (angular position is unimportant), leaving the right hand nut uninstalled.

P



Q



9. Rese ing the internal gear hub to full overdrive continued

(only applicable to manual variants)

8. The manual hub interface will be used to shi the hub into full overdrive in the following steps.

9. [P] Install the enviolo hub into a vice or xture as shown, clamping on the le hand axle ats.
If a vice is not available, installation in the bicycle frame is possible, tightening only the le hand no-turn washer and axle nut to allow rotation of the manual hub interface.

10. [Q] While driving hub clockwise with the sprocket (A), rotate the manual hub interface (B) counter-clockwise toward the full overdrive “H” position until a rm stop is felt. Repeat this rotation 2-3 times by driving the hub clockwise and rotating the manual hub interface back and forth, ending at a rm stop toward (but likely not at) the full overdrive “H” position.

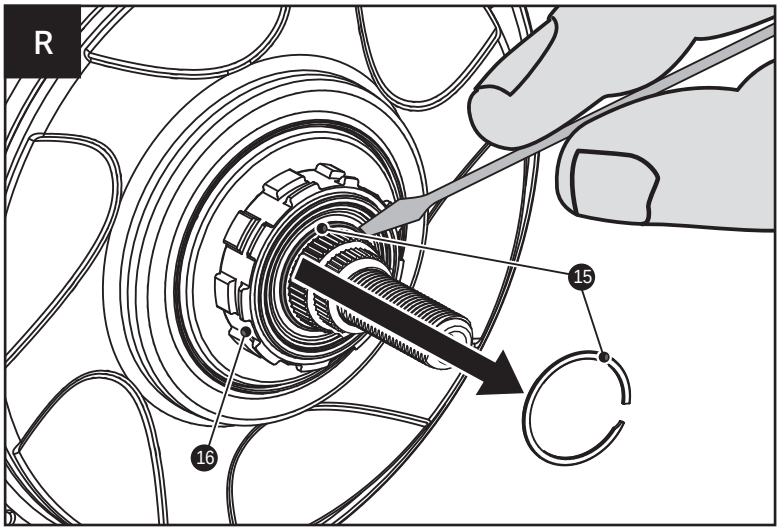
11. The indicated position of the manual hub interface is unimportant in this step.

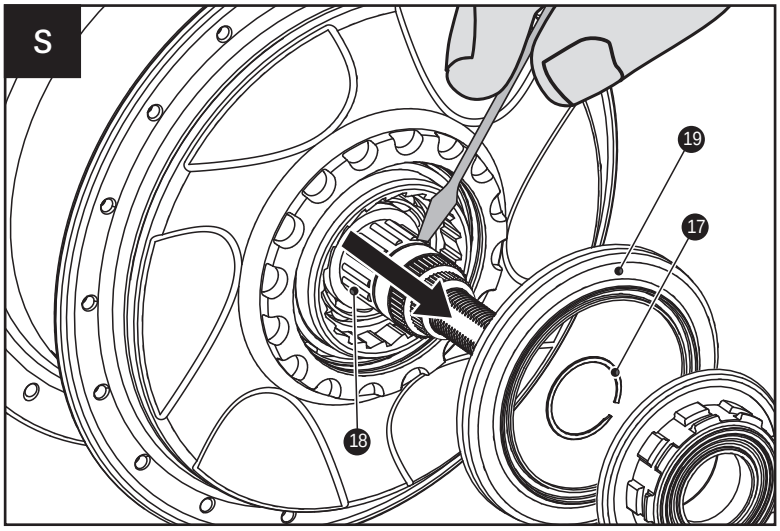
12. When in full overdrive, the hub/wheel should rotate approximately 1.6-2 times for every rotation of the sprocket.

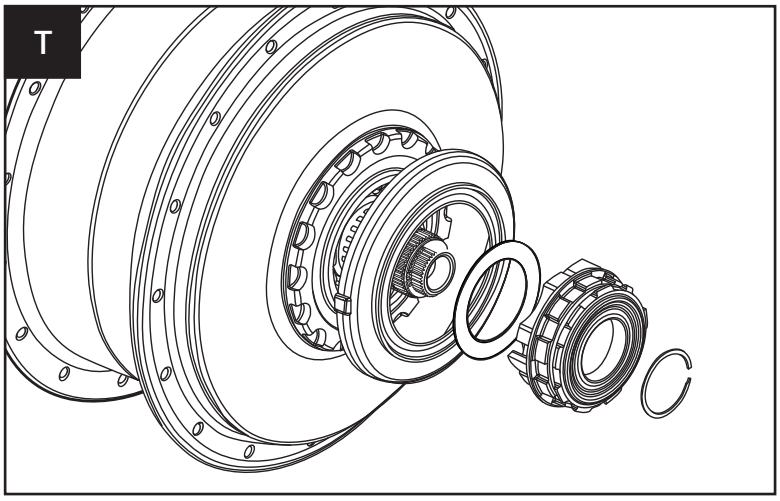
13. When full overdrive is found, remove the manual hub interface per step 4 in this chapter.

14. Check to make sure the mark on the spline nut and shi driver align per step 5 in this chapter.

15. Install the manual hub interface per chapter 5.





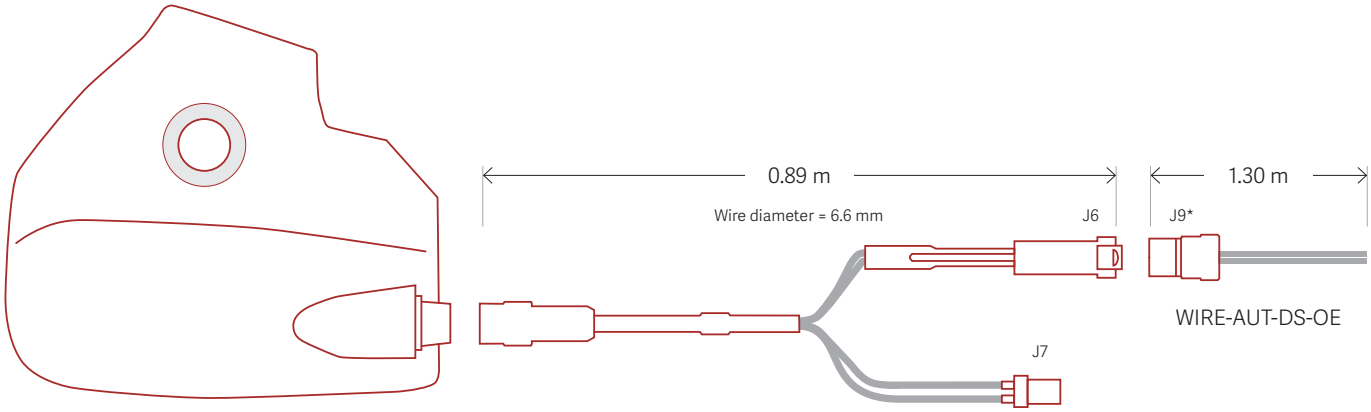


10. Servicing or replacing the freewheel

1. Remove the rear wheel.
2. Remove the hub interface.
3. Reference the exploded view in chapter 8, page 30. Remove the sprocket snap ring (12), sprocket spacer (13, if installed) and sprocket (14).
4. [R] Remove the snap ring (15) on the shi driver, and remove the freewheel assembly (16).
5. If servicing or replacing, use a medium-weight oil or very lightweight water-resistant grease and check pawl and spring function.
6. [S] Remove the interior snap ring (17), needle bearing (18), and right hand shield (19) if these components are being replaced.
7. [T] Install the serviced/new freewheel components .
8. Install the sprocket and hub interface.
9. Install the rear wheel.

Set the enviolo hub in full overdrive with the controller or manual hub interface prior to removal.

enviolo Automatic
Care and Maintenance
WIRE HARNESS



AHI for CT/TR/CO: AHI-AUT-CCT-OE
AHI for CA/SP: AHI-AUT-CS-OE

400mm version: WIRE-AUT-400-OE
600mm version: WIRE-AUT-600-OE

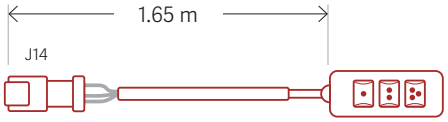
Automatic are I2C Systems

Pins in AHI connector**

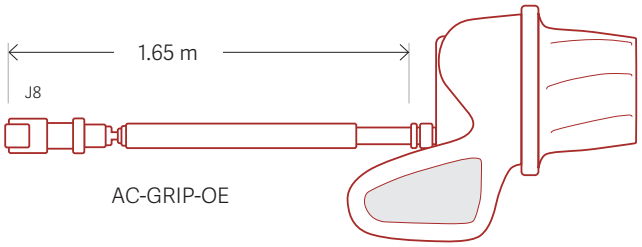
Pins in cable connector**

J6 J9 J7 J14 J8

** Pins marked red are not populated.



AC-3BUT-OE

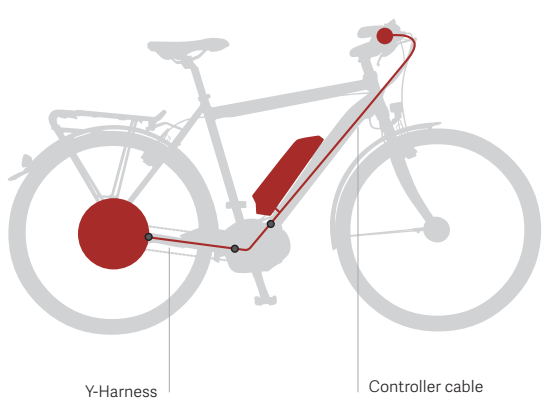


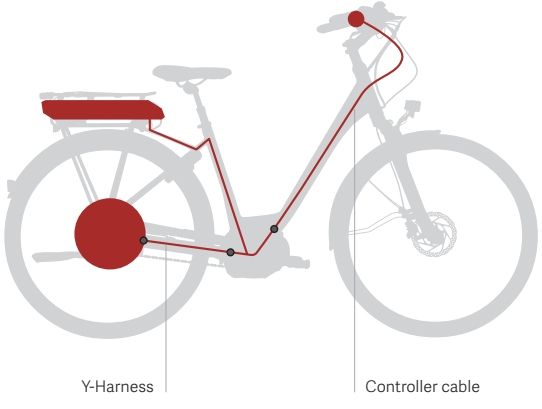
AC-GRIP-OE

* This connector is only required if the counterplug is not provided by the drive system manufacturer. Bafang, Bosch, Brose and Continental have their own cable solution and therefore don´t require this cable. Please contact the drive system manufacturer for further information. For Yamaha we offer an alternative cable. Please contact the sales team for further information.

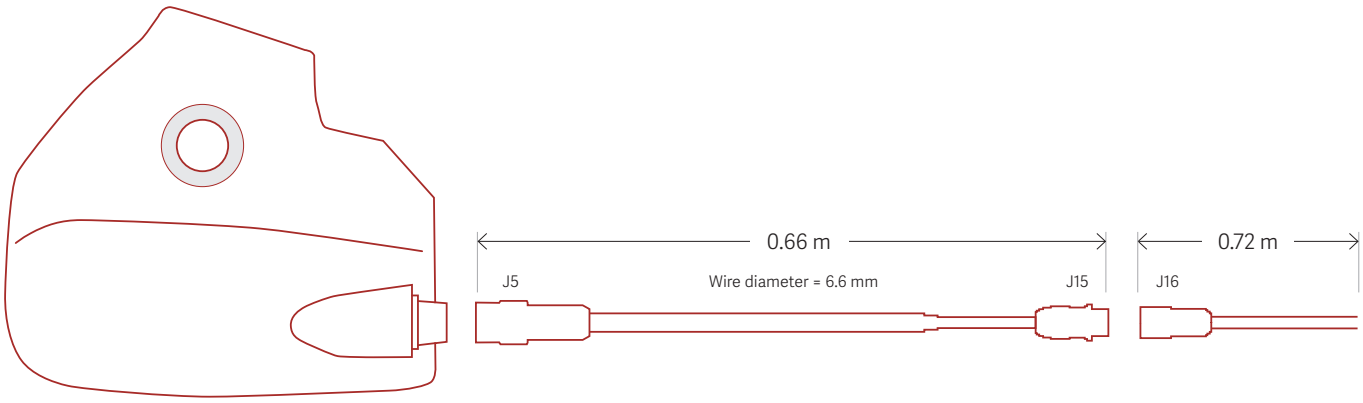
Automatic Wire Harness

This diagram provides you an overview of the system connections.





enviolo Automatic+
Care and Maintenance
AUTOMATIC+ WIRE HARNESS



enviolo CT/TR/CO: AHI-AUT+-CCT-OE
enviolo CA/SP: AHI-AUT+-CS-OE

Hirose connector: WIRE-AUT+-HR-OE
Mini B connector: WIRE-AUT+-MB-OE

Available from drive system manufacturer.

Automatic Integrated is CAN system

Pins in AHI connector

Pins in cable connector

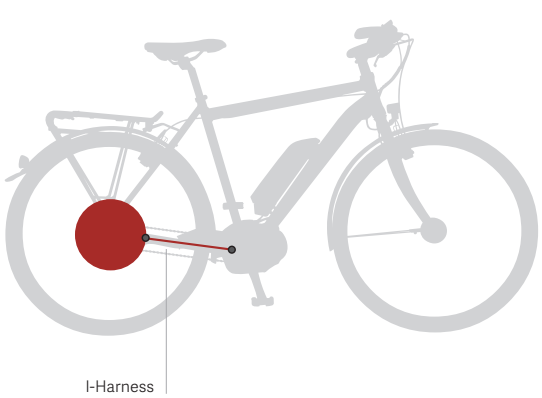
J15

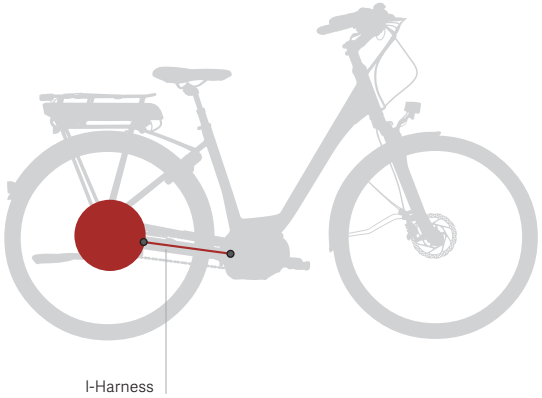
J16

*Pins marked red are not populated

Automatic Integrated Wire Harness

This diagram provides you an overview of the system connections.





Troubleshooting

Assembly Torque Specifications

Torque Specs enviolo CT, enviolo TR, enviolo CO, enviolo CA		Other Parts	

Torque Specs enviolo SP (135 mm),		enviolo SP (142/148 mm)	
Torque adapter screws	2.5 - 3 Nm	Torque adapter screws	2.5 - 3 Nm
Double threaded axle adapters	10 - 15 Nm	Interface adapter	10 - 15 Nm
Axle nuts	30 - 40 Nm	Dropout adapter (not threaded in all cases)	5 - 10 Nm
		Axle bolts	10 - 15 Nm

Warranty

Basic Repair Work

Please check before every ride that all parts are not damaged, properly connected and correctly tightened with the recommended torque including axle nuts, hub interfaces controllers and brake discs.

Shi cables, cable housing, handlebar grips, sprockets, and bike chains are wear parts. Please check these parts regularly and replace them as necessary.

Only a quali ed bike dealer should perform any necessary work on the enviolo manual and automatic systems.

Unauthorized work on your enviolo systems could endanger you and your warranty may become void.

Please contact your quali ed dealer regarding any question or problem you may have.

In case of disposal, please note that all components, accessories and packaging should be disposed of in an environmentally correct manner and not into household waste.

- According to the European guideline 2012/19/EU, electrical components that are no longer usable must be collected separately.

Refer to our website for additional service information at **www.support.enviolo.com**.

Warranty, Misuse and Exclusion of Liability

Failure to use your enviolo shi solution as intended or to follow safety-relevant instructions can lead to an exclusion of liability for any material defects. Any misuse must therefore be avoided! Warranty will therefore not be covered if:

A product has been modi ed or where the serial # or date codes have been altered, defaced or removed.

Our hubs enviolo CT and enviolo TR are not to be used for commercial purposes without wri en pre-authorization from enviolo. Only enviolo CO, enviolo SP, enviolo CA hubs may be used for reasonable commercial purposes and this warranty will be limited to one (1) year for such reasonable commercial use.

Damage to the product occurs:

- determined by enviolo to be caused by crash, impact, or abuse of the product;
- resulting from use of the product in what enviolo, in its sole discretion, considers extreme applications such as, but not limited to, downhill, freeride, “North Shore” style, and BMX;
- resulting from powering of the enviolo CT, enviolo CO, and enviolo TR hubs with electric motors rated over 250W, or any powering of the product with internal combustion engines;
- resulting from running of the hubs with electric motors at continuous torques at the bottom bracket over the defined limits in the table on page 7;
- occuring during the shipment of the product;
- resulting from use of total weight (rider, cargo, and bike higher than 160kg for the enviolo CT and enviolo CO hubs, 180kg for the enviolo TR hubs, and defined limits in the table on page 8 for enviolo SP and enviolo CA;
- resulting from use of the product outside the defined cog ratio limits at 1.8 to 1 on standard bikes and 2.1 to 1 (enviolo CT/enviolo CO) or 2.0 to 1 (enviolo TR/ enviolo CA /enviolo SP) on eBikes;
- resulting from use of the product at nominal voltages of over 36V or peak voltages of over 50V;
- caused by the use of parts that are not compatible, suitable and/or authorized by enviolo for use with the product;

Do not make any modi cations (including so ware) to your enviolo system, which could lead to an increased performance of your bike or eBike.

Please observe all national regulations on registering and using bikes and eBikes.

Minimum Sprocket Ratios Based on Drive System Torque

250 W

enviolo Sportive Groupset SP

Continuous Motor Torque at BB	Weight 160 kg	180 kg	200 kg	240 kg	280 kg
50 Nm	2.00	2.00	2.00	2.00	2.00
55 Nm	2.00	2.00	2.00	2.00	2.00
60 Nm	2.00	2.00	2.00	2.00	2.00
65 Nm	2.00	2.00	2.00	2.00	2.00
70 Nm	2.00	2.00	2.00	2.00	2.15
75 Nm	2.00	2.00	2.00	2.00	2.31
80 Nm	2.00	2.00	2.13	2.13	2.46
85 Nm	2.00	2.13	2.27	2.27	
90 Nm	2.00	2.25	2.40	2.40	
95 Nm	2.00	2.38			
100 Nm	2.00	2.50			
105 Nm	2.10				
110 Nm	2.20				
115 Nm	2.30				
120 Nm	2.40				

enviolo Cargo Groupset CA

Continuous Motor Torque at BB	Weight 160 kg	180 kg	200 kg	240 kg	280 kg
50 Nm	2.00	2.00	2.00	2.00	2.00
55 Nm	2.00	2.00	2.00	2.00	2.00
60 Nm	2.00	2.00	2.00	2.00	2.00
65 Nm	2.00	2.00	2.00	2.00	2.00
70 Nm	2.00	2.00	2.00	2.00	2.15
75 Nm	2.00	2.00	2.00	2.00	2.31
80 Nm	2.00	2.00	2.13	2.13	2.46
85 Nm	2.13	2.13	2.27	2.27	
90 Nm	2.25	2.25	2.40	2.40	
95 Nm	2.38	2.38			
100 Nm	2.50	2.50			

enviolo Trekking Groupset TR

Continuous Motor Torque at BB	Weight 160 kg	180 kg
50 Nm	2.00	2.00
55 Nm	2.00	2.00
60 Nm	2.00	2.00
65 Nm	2.00	2.00
70 Nm	2.00	2.00
75 Nm	2.00	2.00
80 Nm	2.13	2.13
85 Nm	2.27	2.27
90 Nm	2.40	2.40

enviolo City/Commercial Groupset CT CO

Continuous Motor Torque at BB	Weight 160 kg
50 Nm	2.10
55 Nm	2.31