



CE USER MANUAL

Lacros Electric Bicycles DRAFTER

ELECTRIC (FOLDING) BICYCLES FROM THE NETHERLANDS
INTELLIGENT, RELIABLE AND COMFORTABLE

EN

WWW.LACROS.NL

For your safety

The issue of safety cannot be overstated, so please read the following safety instructions carefully. More safety tips will be discussed later in this manual:

1. The LACROS electric bicycle is equipped with an electric motor. It is of great importance that you get used to the bike quickly. We advise you to choose quiet roads for your first "cycle practices" with little traffic situations and a pleasant road surface.
2. Do not immediately step on the pedal when you start a bicycle ride; this can lead to dangerous situations. Always sit down on the saddle first before you start cycling.
3. It is the rider's responsibility to steer and brake.
4. Preferably cycle the first rides without electric assistance to get familiar with your bicycle. After that, you can start with pedal assistance at a low setting.
5. The brakes are equipped with 'ABS' safety. As a result, the electric assistance switches off when braking.
6. Our employees always test the LACROS bicycles. Please get in touch with us if you have any doubts about the bike and/or the bicycle's electrical installation.
7. Never leave the battery and charger in direct sunlight. The battery is protected against heat, but intense heating should be avoided.
8. Never use a charger other than the one supplied by Shinga B.V. Always use the original charger for your safety.
9. We advise wearing a helmet while cycling. Always check the tire pressure and handlebar and saddle clamps before departure, and take into account a longer braking distance during bad weather conditions.

The LACROS bicycles are delivered in accordance with the most recent European directives (page 3). In case you have any questions or comments, don't hesitate to get in touch with us.

We are always available for users of LACROS bicycles:

Email: service@lacros.nl

Telephone: +31 73 203 2487

Thank you for your trust,

Team Lacros

Quality standard

Your product concerns an electric bicycle. The A-weighted emission sound pressure level at the driver's ears is less than 70 dB(A). The electric drive is equipped with pedal assistance and is powered by an external battery. This battery can be positioned in different locations, such as in the luggage carrier or the frame. The battery is charged utilizing an external charger. This external charger is considered a separate product and is CE certified (based on the Low Voltage Directive and the EMC Directive).

The battery's input voltage is 36V, the motor's capacity is 250W, and the vehicle's maximum speed is 25 km/h.

Based on the above product description, the following directives apply:

- EMC-Directive: 2014/30/EU
- Machinery Directive: 2006/42/EC
- ROHS Directive: 2011/65/EU

The Low Voltage Directive does not apply because the input voltage is only 36V. The charger of the battery is separately labeled with a CE mark.

From the above directives, several (harmonized) standards are applicable.

The following three standards are relevant in this context and should be used as input for all other documentation:

- EN 15194:2017 (Bicycles - Electrically supported bicycles – EPAC Bicycles)
- NEN-EN-ISO 4210-1:2014
- EN ISO 12100:2010

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The saddle height



Figure 1: seat post

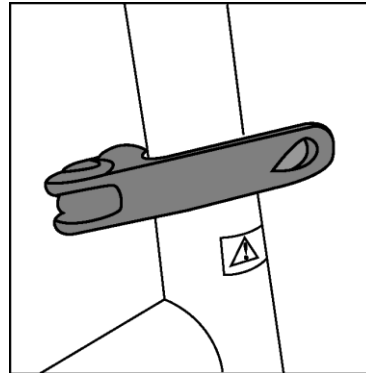


Figure 2: seat post

It is possible to adjust the saddle height by loosening the clamp in figure 2. Subsequently, you can move the seat up or down. Fasten the clamp again at the right height. Pay attention to the rippled line that is engraved in the seat post. This line shows the minimum length that should remain in the frame (seat post).

The front fork suspension

The Drafter is equipped with a monoshock front fork suspension. The stiffness is not adjustable.

The Tire Pressure

The maximum permitted tire pressure varies per type of tire. Therefore, always look at the side of the tire first before inflating it to ensure you don't exceed the limit.

We recommend the following tire pressures:

Model	Tire pressure (Bar/psi)	
Drafter	3.0-4.0	50.8-58.0

The tires are equipped with a Dutch valve (Blitz) or a car valve (Schräder). A tire with a Dutch valve can be inflated with a standard bicycle pump. An adapter nipple also fits on these valves so that you can inflate the tire with a car tire pump.

The Brakes

Our bicycles are equipped with two brake levers (A). We recommend using both brake levers when braking. You can operate the rear and front brakes by squeezing the right and left brake levers.

Your bicycle is equipped with disc brakes. The three figures below show the types of brakes which may be fitted on your bicycle.

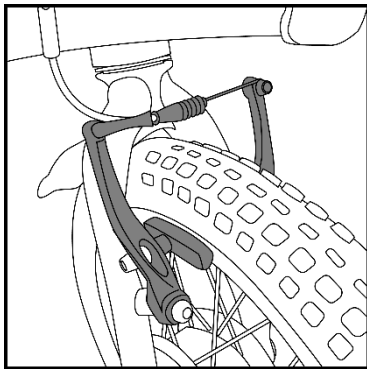
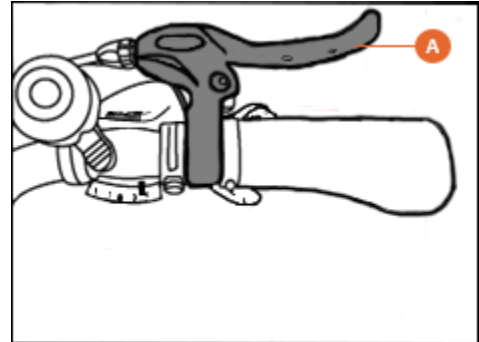


Figure 1: Rim brake

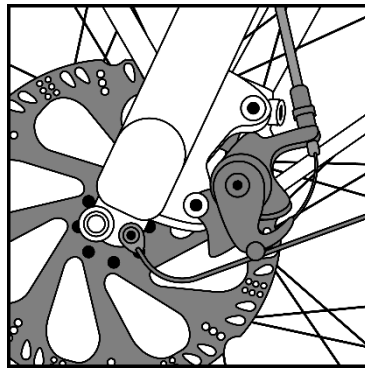


Figure 2: Disc brake

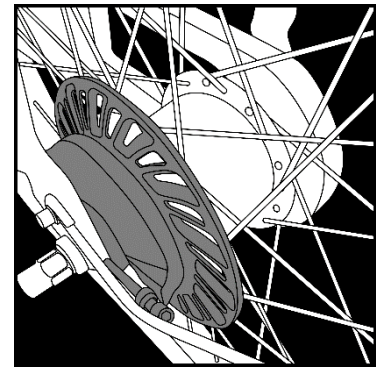


Figure 3: Rollerbrake

For your safety:

- Note that rims and brake pads could be hot after using rim brakes.
- Note that brake discs, calipers, and pads could be hot after using disc brakes. The rims are not part of the braking system.
- Rim and disc brakes should be properly braked in and grease-free to prevent squeaky brake noises. In addition, brake the first kilometers with an even brake action. This ensures that the brake pads take the shape of the rim or disc, creating an optimal braking surface.

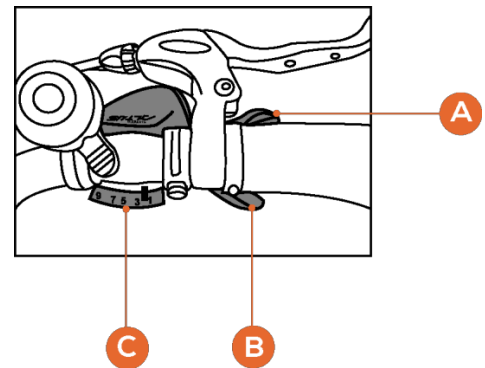
Gears

Derailleur

Note: you should keep pedaling when switching gears. In addition, not much force should be put onto the pedals while shifting to keep the derailleur in good condition.

Type 1

The shift mechanism of the derailleur is located on the right side of the steering wheel. It has a "+" (A) and "-" (B) thumb/finger control. Press (A) to shift up and press (B) to shift down. At (C), you can read the current gear.



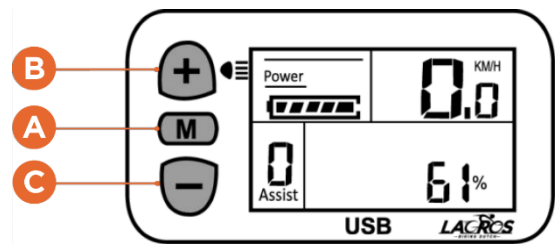
Control system rear wheel motor

BS200 Display

Turn on the display

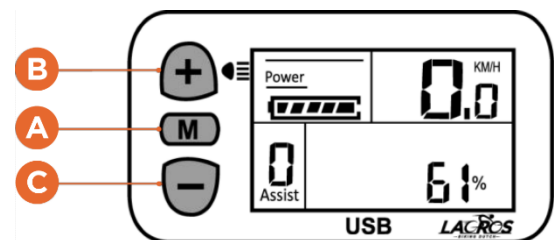
Press the "M" button (A) on the left side of the display to turn on the bicycle's electrical circuit. Note that the battery should already be powered on. A menu appears on the display; the electrical circuit is switched on.

- (A) On/off button display
- (B) Increase motor support and light switch
- (C) Decrease motor support



Turn bicycle lights on and off

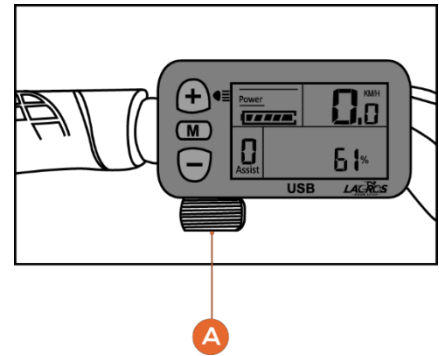
Hold the "+" button (B) for a few seconds to turn on the bicycle lights. The lights symbol appears on the display. Hold the "+" button (B) again for a few seconds to turn off the bicycle lights.



Thumb lever walking position

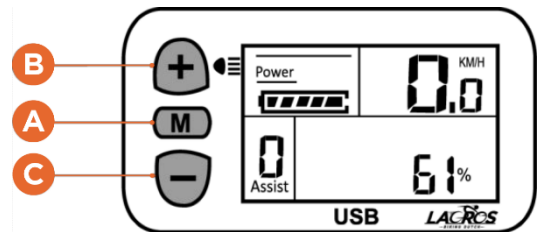
By pushing the thumb lever (A) down at a standstill, you activate the **walking assist**, giving support up to 6 km per hour. (Note: the walking assist via the thumb lever does not work when the bicycle is in support level "0".)

Note: when using the thumb lever while cycling, the electrical support goes directly to its maximum (25km/h).



Switch between the 9 levels of support

The electrical support has 9 levels. These are displayed in the lower-left corner of the display. These 9 levels can be controlled by briefly pressing the "+" (B) and "-" (C) keys.

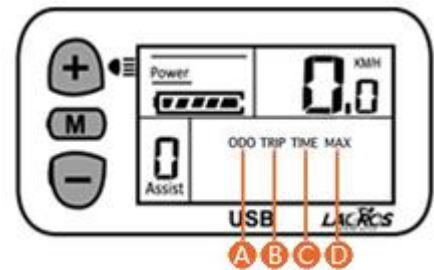


Additional display options

By pressing the "M" button sequentially, you can browse through various information at the bottom of the display:

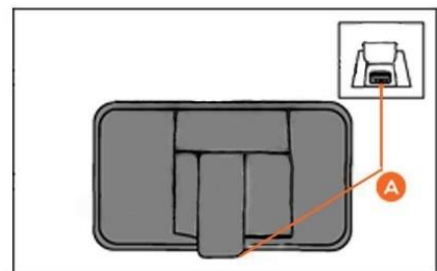
- (A) Total km/miles (ODO)
- (B) Trip reading (TRIP)
- (C) Cycling time (TIME)
- (D) Maximum speed (MAX)

Note: when using the thumb lever while cycling, the electrical support goes directly to its maximum (25km/h).



USB port

Below the display, you will find a USB port (A) where, for example, a phone or navigation device could be charged during cycling. Charging only works when you press and hold the "M" key and the '+' key for two seconds. This will activate the USB port.



The operation of the electrical support

The bicycle functions generally on PAS (pedal assistance) utilizing a magnet-rotation sensor. This means that the electrical assistance starts when the pedals rotate. In addition, a thumb lever is located on the handlebar, which can activate the maximum assistance, apart from assistance levels 1 to 9. As long as the thumb lever has a forward position (during pedal rotation), the motor will give the maximum assistance, comparable with assistance level 9 on the display.

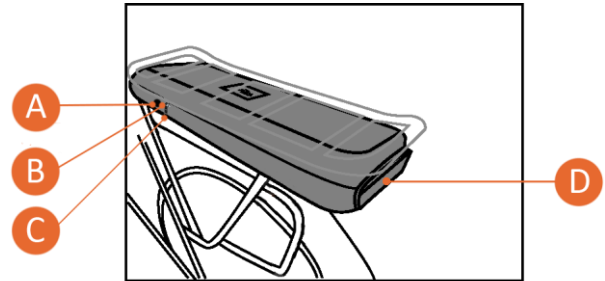
Support is interrupted when:

- The pedals stop rotating;
- the brakes are being used;
- the thumb lever is released when in use.

The Battery

Turning on the battery and reading the battery indication

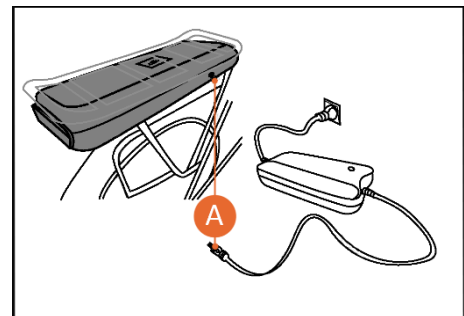
The battery of these Lacros bicycles is located in the luggage carrier. Turn on the electrical system using the button on the left side of the battery (B). Please note you have only activated the battery, and the display is still switched off. The number of lights (C) gives a rough indication of the battery charge. **You can turn off the battery by pressing and holding the power button for four seconds until the display switches off.**



- (A) Lock
- (B) Power button
- (C) Battery charge indication
- (D) Brake light/Rear light

How to charge the battery

The battery has one charging point (A) on the right side. Connecting the charger to the battery is recommended before plugging the 220V plug into the socket. The charger stops charging as soon as the battery is full. The light on the charger now turns green, and the charger may be disconnected.



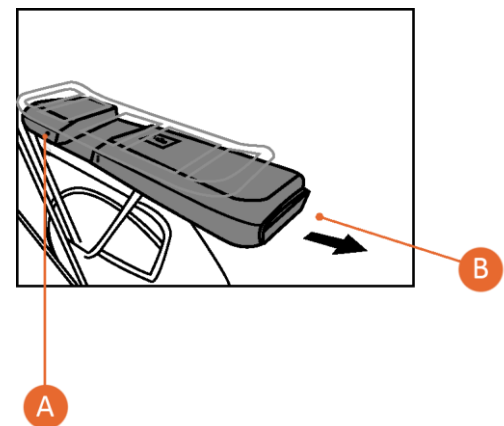
Indication on the charger:

Red = The battery is charging.

Green = The battery is fully charged.

Removing the battery

The battery can be removed from the luggage carrier by turning the key of the battery bay lock (A) to the left and then gently pulling the battery (B) backward. Ensure the battery is locked again when you put it back in. The battery could otherwise start vibrating while cycling.



Range

The range, the distance in kilometers that can be traveled with a fully charged battery, is influenced by several factors:

- Capacity (Ah) and voltage (V) of the battery;
- motor support level;
- load on the bicycle;
- amount of pedaling power delivered by the rider;
- ambient temperature (the capacity of the battery decreases below 10°C);
- wind force;
- tire pressure;
- condition of the road surface;
- age of the battery (the range decreases as the battery ages).

Battery & Charging

General

- The battery can be charged in and out of the bicycle.
- Ensure the contact points of the battery and the battery bay are fully aligned when placing the battery back.

Charging advice

- Always charge the battery with the Lacros charger supplied with the bicycle. Do not use a different charger.
- The first two charges of a new battery should be more than 60%. To achieve this, wait the first two times to charge until the battery charge indicator on the display has dropped below 40%.
- After the battery is fully charged, charging stops automatically. Only when the red indicator light on the charger becomes visible again will the battery charge.
- After two full charges (first two charges), the battery does not have to be at least 40% empty again before charging. The battery can be connected to the charger repeatedly, even after short trips.
- The battery remains in good condition when you recharge the bicycle after each use, regardless of the distance.
- The warranty on the battery expires if a deep discharge is detected (this can only happen if you leave the battery on and put it away for a long time without recharging it).
- In case of long-term storage: fully charge the battery, disconnect the battery from the charger and the bicycle, and turn off the battery. The battery is switched off when your bicycle's display turns off.
- Charge the battery at least once every two months.
- The battery performs less below 10 °C, it then has less capacity, and you will be able to cycle fewer kilometers on a single battery charge.

Warnings

Please read the warnings below carefully.

- Do not expose the battery to fire or heat.
- Battery operating temperature: 5°C~40°C
- Battery storage temperature: -20°C~60°C
- Do not drop the battery or damage it.
- Do not submerge the battery in water or any other liquid.
- Keep the battery away from children.
- Never open the battery without permission from Shinga B.V. The battery is provided with a seal. The warranty is violated if the seal is broken without the explicit consent of Shinga B.V.
- Do not charge the battery in direct sunlight or below 0°C.
- Read the charger label carefully.
- Do not put liquids or metal inside the charger.
- Do not connect the charger to the battery with wet hands.
- Do not touch the charger in case of lightning.
- Do not use the charger in a very humid environment.
- Do not use the charger for anything other than charging the corresponding battery.
- Ensure good ventilation for the battery and charger when the charger is in use.
- Do not connect the charger to a power outlet when the charger is not in use.

Safety rules

General

- Please read the supplied manual of your bicycle carefully before your first use.
- Check the screw connections and condition of all parts of your bicycle before each use.
- Our bicycles are intended for use on public roads only and are not designed for competitions, stunts, jumping, or off-road use.
- Strictly adhere to the traffic rules.
- The maximum speed of the vehicle is 25 Km/h.
- Loose or long garments could pose a danger when cycling.
- Be careful not to get caught between moving parts.
- Note that disc brakes, calipers, and pads may be hot after using disc brakes.
- Note that rims and brake pads may be hot after using rim brakes.
- Do not cycle with loose and/or missing spokes.
- Keep kids away from moving parts.
- Never disassemble the bicycle yourself. If a part replacement is necessary, please get in touch with your Lacros dealer or Shinga B.V. for the relevant part. We always recommend using original parts.
- Do not lend your bicycle to people with little experience with an electric bike.
- Do not drive under the influence of mind-altering substances.
- Never load the bicycle over its maximum carrying capacity.

- It is allowed to mount a child seat on the luggage carrier of the bicycle. Pay attention to the maximum carrying capacity of the luggage carrier and always follow the manufacturer's instructions for the child seat.
- Do not modify anything about your vehicle yourself. As a result, the warranty and liability will lapse. Maintenance, as described in this manual, is permitted. If you want to modify your bicycle, please first contact your Lacros dealer or Shinga B.V.
- If the front fork, steering column, or handlebar are bent after an accident, they may under no circumstances be bent back to their original position to prevent breakage. Contact your Lacros dealer or Shinga B.V. directly to have the damaged parts replaced.
- Rims are subject to wear and tear. Have your rim checked by your Lacros dealer or Shinga B.V. if it shows damage, pay specific attention to (small) cracks.
- Improper use of the bicycle can lead to dangerous situations.

Warning symbols

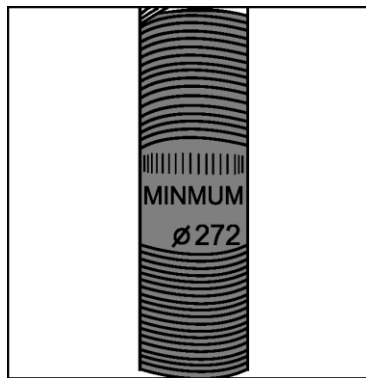


Figure 1: Seat post

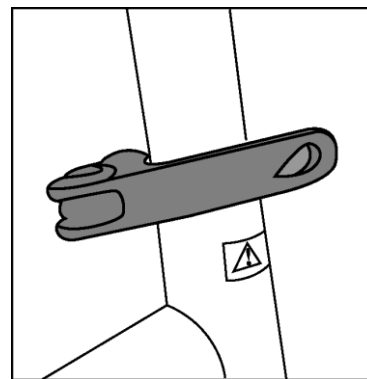


Figure 2: Saddle clamp

- **Seat post:** see figure1. A rippled line is engraved in the seat post. This is the minimum length that the seat post should remain in the frame.
- **Seat clamp:** see figure2. This clamp allow you to set the saddle to the correct height. Make sure these clamps are securely fastened.



Your bicycle is equipped with several warning stickers. These stickers can be recognized by a triangle with an exclamation mark. The following stickers may be present on your bike:

Text on sticker	Additional explanation
CAUTION please read the owner's manual thoroughly before using this product	
Make sure the safety mark on the seat post always stays within the seat tube. Don't ride this bicycle as MTB-BMX-DJ	MTB = Mountain bike BMX = Bicycle Motocross DJ = Dirt Jump
WARNING for your own safety, make sure each folding hinge is locked before riding	

<p>Attention. Turning these 2 screws is prohibited. It will lower lever sensitivity</p>	
<p>WARNING This bicycle is not designed for competition, stunting, jumping, or off-road use. Bicycling can be hazardous. Always wear a safety helmet and follow all local laws. Max load: read the manual. Please check the chain tension and turn off the power of the bicycle before use or pushing the bicycle to avoid accidentally triggering the booster sensor.</p>	<p>Booster sensor = Magnetic rotation sensor</p>
<p>WARNING Review and follow all safety instructions contained in the owner's manual. For your safety, never misuse, abuse of improperly install, maintain, or modify this part, always keep in mind safety first. CAUTION: This product is not recommended for downhill competition, stunt riding or any aggressive off-road riding.</p>	

Warnings

Please read the warnings below carefully.

- Like all mechanical components, an EPAC, Electrically Power Assisted Cycle (electric bicycle), is subject to wear and tear and high voltages. Different materials and components can react to wear or stress fatigue in different ways. If the design life of a part is exceeded, it can suddenly fail, potentially injuring the driver. Any kind of cracking, scratching, or color changes in heavily loaded areas indicate that the service life of the part has been reached and that it needs to be replaced.
- For composite components, impact damage may be invisible to the user; the manufacturer will explain the consequences of impact damage and that in the event of a shock composite components must be returned to the manufacturer, for inspection or to be destroyed and replaced.
- Composite components are sensitive to high temperatures (heat radiation) in a closed environment.

Frame number

The frame number of the Drafter can be found on the front of the bike. This is stamped into the frame just above the front fork.

Maintenance

Your e-bicycle needs regular maintenance. Shinga B.V. or your Lacros dealer can advise you on optimal use and maintenance. If you have any questions or problems with your e-bicycle, don't hesitate to contact the Lacros dealer or Shinga B.V.

We recommend the first service of your bicycle after 1000 km. After the first service, we recommend you service the bike annually or every 2500 km. To extend the life of your bicycle, we recommend keeping the chain and derailleur clean. Lubricate your chain with chain oil once every 3 months. Check the screw connections regularly and tighten them if necessary. We advise you always to use original components for your safety if parts need to be replaced. These components are for sale at Shinga B.V. or your Lacros dealer.

For maintenance instructions, you can consult the Lacros by Shinga YouTube page, which can be found at www.youtube.com/ShingaBicycles. Here you will find, among other things, videos with instructions for adjusting your brakes, changing brake pads, and tensioning the bicycle chain.

Legal Requirements

According to European legislation, the described vehicle is an electric bicycle because the vehicle complies with the following rules:

- From 6 km/h, the support is only active when the user pedals himself;
- the support is active up to a maximum of 25 km/h;
- the maximum delivered power is equal to 250 Watts.

According to Dutch law, the described vehicle is a bicycle because the vehicle has the following parts:

- two independent, well-functioning brakes;
- front light with white or yellow light & rear light with red light and reflector;
- wheel reflector and/or reflective tires and/or reflective rims;
- pedals with yellow reflectors.

Environment

Following the environmental regulations for the intake and processing of batteries of the Dutch Ministry of VROM, we advise you always to return the battery to your Lacros dealer or Shinga B.V. They are obliged to collect the battery and take care of the further processing of the battery.

Technical specifications

Drafter

- Frame: Aluminum
- Motor type: Rear hub motor
- Motor voltage: 36V
- Motor power: 250W
- Sensor: Sinus rotation sensor
- Battery type: Lithium polymer (heat-resistant cells)
- Battery Specifications: 36V, 17.5Ah
- Range: 80-120km
- Pedal assistance: 9 levels
- Gears: Shimano 9 derailleur
- Brakes: Disc brakes
- Maximum load luggage carrier: 25 kg
- Maximum load: 130 kg
- Gross weight: 26.5 kg
- Net weight (without battery): 23 kg
- Wheel diameter: 28 inch
- Maximum speed: 25 km/h

EC Declaration

Supplier:	Technical File:	Manufacturer:
SHINGA B.V. NIEUWE EERDSEBAAN 16 5482 VS SCHIJNDEL NETHERLANDS	SHINGA B.V. NIEUWE EERDSEBAAN 16 5482 VS SCHIJNDEL NETHERLANDS	SHINGA B.V. NIEUWE EERDSEBAAN 16 5482 VS SCHIJNDEL NETHERLANDS

Product: Electric bicycle

Model: LACROS Drafter

THIS ELECTRIC BICYCLE IS PRODUCED ACCORDING TO AND IN APPLIANCE WITH THE DIRECTIVES OF THE EUROPEAN UNION ON ELECTRIC BICYCLES WITH A MAXIMUM SPEED ≤ 25 KM/H AND A MAXIMUM (MOTOR) OUTPUT OF 250W

THE FOLLOWING "EN" (ISO) STANDARDS APPLY:

EN ISO 12100:2010; EN ISO 13854:2019; EN ISO 14120:2015; EN ISO 13857:2019; EN ISO 4210-1 to 9:2014; EN15194:2017

COMPLIANCE TO THE EC DIRECTIVES:

MACHINERY DIRECTIVE (2006/42/EC); LOW VOLTAGE DIRECTIVE (2014/35/EU);

ELECTROMAGNETIC COMPATIBILITY DIRECTIVE (2014/30/EU), ROHS DIRECTIVE (2011/65/EU)

EC EXECUTIVE BODY CERTIFICATION: ENTE CERTIFICAZIONE MACHINE S.R.L., VIA MINCIO 386, 41056 SAVIGNANO, ITALY; NOTIFIED BODY EC TYPE OF RESEARCH NUMBER: 1282

CERTIFICATE NUMBER: 111123/ZJV845

CERTIFICATE DATE: NOVEMBER 2011



LIFE IS LIKE RIDING A BICYCLE.

**TO KEEP YOUR BALANCE, YOU
MUST KEEP MOVING.**

- ALBERT EINSTEIN