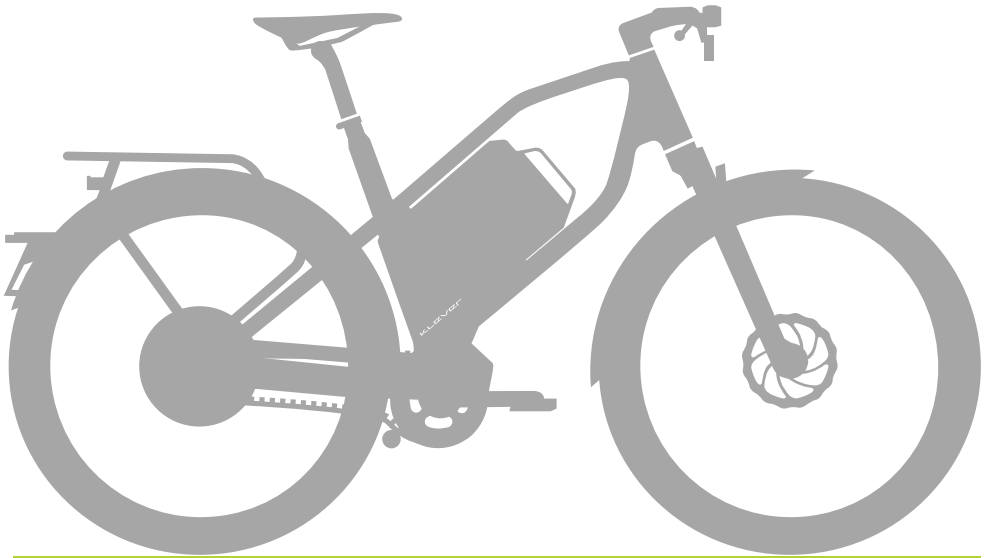


Model

# X Pinion 45

9 speed version



MY'2023

This technical documentation has been compiled by: Klever Mobility NL bv.

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## 1. QuickStart

### Dear customer,

Here you will find instructions for a QuickStart with your new Klever 45 km/h E-bike. For more technical information read the additional instructions on the following pages.

Should you have any further questions, please ask your authorised Klever dealer.

Enjoy your Klever 45 km/h E-bike, we wish you a lot of fun,  
The Klever Mobility team.



Image 1.1

### Safety check

Before starting your E-bike make sure that saddle and handlebar are correctly tightened to the proper torque (settings can be found in chapter 14. Technical data). Always check the operation of the brakes and the tyre pressure.

### Starting your Klever E-bike

You can start with or without inserting the dedicated E-KEY (image 1.2). Check for the function of the E-KEY section 5.4.3. Menu & submenus for settings. As soon as you insert the E-KEY into the display, the system will be activated and will start itself. With the E-KEY already in the display while the system is off, there are two ways to activate the system:

- 1. Press the on/off button** (image 1.3), after a system check your E-bike is ready to be pedalled.
- 2. Or just start pedalling and the electric system will wake up automatically.** We recommend removing the E-KEY from the display after starting.



Image 1.2



Image 1.3

### System level

| System level | Electric support                   |
|--------------|------------------------------------|
| <b>N</b>     | No support, electric system active |
| <b>ECO</b>   | Low support                        |
| <b>TOUR</b>  | Medium support                     |
| <b>MAX</b>   | Strongest support                  |

The ⚡ (TURBO) button on the display has **2 functions**:

|   |           |  |
|---|-----------|--|
| <b>1. Walk-assist:</b> actuate the ⚡ (TURBO) button while walking next to your E-bike. The maximum speed is 4 km/h.   | ≤ 4 km/h  | Pushing aid while taking your E-bike by the hand.          |
| <b>2. TURBO-mode WITH pedalling</b> of the cyclist. While actuating the ⚡ (TURBO) button in ECO- or TOUR-mode the electric support will be increased to MAX-mode. The maximum speed is 45 km/h. | ≤ 45 km/h | Additional support while riding hills or strong headwinds. |

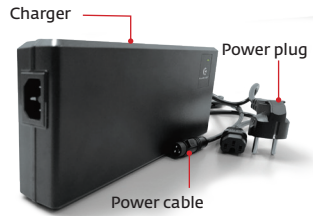


Image 1.4



Image 1.5

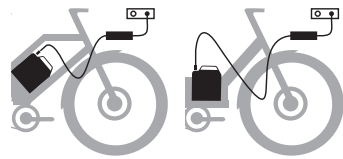


Image 1.6

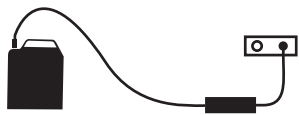


Image 1.7

## Charging the battery

**Caution!** To maintain your warranty, the battery must be charged with Klever chargers only (image 1.4).

The battery can be charged on your E-bike (image 1.6). You can also remove the battery from your E-bike and charge it indoors (image 1.7). For removal of the battery from its docking station see section 5.5.3.

- When charging the battery on the E-bike, make sure that your E-bike is turned off. Then wait 30 seconds: the headlight will then flash and the LED light on the battery will flash blue (image 1.5).
- Now connect the power cord to the charger and then the power plug to the wall socket.
- If the LED on the charger shows constant red light, the charger is ready for use.
- Connect the charger plug of the charger to the charging socket on the battery (images 1.4 + 1.5). The charging process starts automatically.
- Do not attempt to follow the charging process on the display. By switching your E-bike back on, the charging process will be stopped automatically.
- However, you can follow the charging process through the LED lights on the charger and the battery (see table below).
- Once the LED on the charger constantly lights green the operation is completed and the battery is charged.
- Unplug the power plug from the wall first, then remove the charger lead from the battery charger.
- For a longer battery life, make sure that the battery is no longer connected to the charger after the charging has been completed.
- Avoid using or storing the battery in very hot or very cold conditions over a longer period of time (i.e., over 45°C and below -10°C). The battery has a temperature protection and switches off automatically if these min. and max. temperatures are exceeded. The battery can be switched on again if you connect it at normal room temperature to the charger (image 1.4) or you press the LED button (image 1.5).

| State of charge | Charger LED     | Battery LED     | Note                               |
|-----------------|-----------------|-----------------|------------------------------------|
|                 | Flashing red    |                 | Error code: check connections      |
|                 | Steady red      |                 | Charger ready to charge            |
| 0%              | Flashing yellow | Flashing red    | Capacity very low; charging starts |
| < 35%           | Steady yellow   | Flashing red    | Normal charging                    |
| 35 – 75%        | Steady yellow   | Flashing yellow | Normal charging                    |
| 75 – 90%        | Steady yellow   | Flashing green  | Normal charging                    |
| > 90%           | Flashing green  | Flashing green  | Final charging                     |
| 100 %           | Steady green    | No LED colour   | Fully charged                      |

The charging of an empty battery will take about:

- 3.5 Hours for an 850 Wh battery with a 6A Klever charger.
- 5 Hours for a 1,200 Wh battery with a 6A Klever charger.

## 2. Introduction & which type of E-bike?

Congratulations! With the purchase of this Klever 45 km/h E-bike you are the owner of a high-quality E-bike. For a trouble free, pleasurable riding experience, carefully read this manual. You will find everything you need to know in terms of specifications, operation, maintenance and care. For additional information look in the separate manuals which come with some of the components.

**Pay particular attention to sections in bold which are marked with the "Caution!" symbol. The most important information is summarised. It should be observed to avoid possible accidents and danger to life and limb.**

**Bold sections marked with the "Please note!" symbol contain information about your E-bike, its accessories and its handling.**

**Operations marked with the "Tool" symbol are to be executed by authorised Klever dealers. These operations require specific expertise and dedicated tools.**

Furthermore, in case you need any additional information or advice, please contact your local authorised Klever retailer. The latest available information on our products, other technical information and videos can be found on our website: [www.klever-mobility.com](http://www.klever-mobility.com).

### E-bikes & speed E-bikes

Over the last 15 years the E-bike category has become enormously popular. Today you will find all sorts of E-bikes. The current market of E-bikes with pedal assistance consists of two main types of E-bikes with their own legal framework:

- Regular E-bikes with a maximum pedal assisted speed up to 25 km/h, called EPAC's (Electrically Pedal Assisted Cycles).
- And Type-approved E-bikes with a maximum pedal assisted speed up to 45 km/h, called speed pedelecs or speed E-bikes.

Klever Mobility offers E-bikes in both categories, 25 km/h EPAC's as well as 45 km/h speed E-bikes.

### EC Type-approval & L1e-B vehicle

Your new Klever 45 km/h E-bike is not a regular E-bike, it is a speed E-bike. It has been equipped according to the EC Type-approval Regulation 168/2013. And has been classified as a vehicle in category L1e-B. Therefore, you can safely use it on public roads in Belgium, the Netherlands and all other 25 countries of the EC.

A 45 km/h E-bike must be equipped with a well audible horn, a wing mirror on the LH-side (UK RH-side), a lighting system with quality marks for the headlight and the tail light with integrated brake light, reflectors and with 2 sets of brakes independently actuating the front and rear wheel.

The electric pedal assistance is limited to max. 45 km/h, and thus complies with the statutory requirements for an L1e-B vehicle. Due to the fact that your new Klever 45/h E-bike is a type-approval vehicle it must be registered at your national road safety authority (e.g., DIV in Belgium, DREAL in France, KBA in Germany, RDW in the Netherlands, or DVSA in the United Kingdom). In addition, you will need a license plate (as proof of your local registration & insurance), a liability insurance and a driving license. Moreover, you will need to wear an approved helmet for 45 km/h E-bikes as well.

In the legal section (chapters 10. & 11.), you will find more information on the Type-approval, the EC Certificate of Conformity and the legal aspects and usage of a 45 km/h E-bike.

## 3. Getting started & safety check of your Klever 45 km/h E-bike.

Your E-bike has been subjected to an end-of-line-check on the assembly line of our factory. Afterwards it has been checked at your local Klever dealer. Yet, the transport and the use over time may have caused some changes. Therefore, prior to your first ride, and occasionally thereafter, you should consider to check following points.

- Make yourself familiar with this 45 km/h speed E-bike and the functioning of its electric motor support, before the first ride in public traffic.
- Proper setting of the saddle and the handlebars.
- Function of the brakes.
- Air pressure and the profile depth of the tyres.
- Proper operation of the lighting system.
- Tightness of the bolts and nuts of the wheels.
- Minimum insertion of the seat post.

**!** **Caution! Do not start when you identify deficiencies in one of these points. While riding a defective E-bike this can cause accidents and endanger your life. If in doubt, contact your Klever dealer.**

**!** **Caution! Through extreme weather and road conditions there is wear and tear in everyday riding. Because of the dynamic loads the parts & components of your E-bike experience different material fatigue and wear. Therefore, it is recommended to inspect your E-bike on a regular basis and look for wear of parts and changes in scratches or cracks, or the discolouring of parts. These could indicate damage of the part. Needless to say, that damaged parts must be repaired or replaced.**

**i** **Please note! Following the inspection plan in chapter 16., you best bring your E-bike to your Klever dealer for inspection, service, maintenance and repair.**



**Please note! Since this Klever 45 km/h E-bike is a Type-approved vehicle, make sure to only use original Klever Type-approved spare parts for replacement. The same applies to upgrades (e.g., winter tyres or suspension seat post). You can only select components from the Klever Type-approval list. In case you are not sure whether to use Type-approved spare parts, always contact your official Klever dealer.**

## 4. Behaviour in road traffic with a 45 km/h speed E-bike

With the help of your Klever 45 km/h E-bike's electric pedal assistance, you reach high speeds and you accelerate substantially faster and easier than you are used to with a regular E-bike. Therefore, you should intensively familiarise yourself with this 45 km/h E-bike on a traffic-calmed road or parking lot before going in public traffic. During riding on the road, you should follow these guidelines:

- It is compulsory to always wear an approved 45 km/h E-bike helmet.
- Make yourself familiar with the traffic rules and stick to the rules.
- Be ready to brake at any time and expect misconduct of others.
- Ride defensively and be considerate to other road users.
- Ride as much as possible, but only when allowed, on bike lanes.
- Always keep your E-bike in a perfect condition.
- Use your E-bike only in accordance with its intended purpose (see chapter 11. Intended use).
- Do not use a mobile phone nor a headset while riding.
- Be sure to observe the maximum weight of cyclist + E-bike + luggage (see chapter 14. Technical data).
- Have your E-bike checked according to the recommended service intervals (see chapter 16. Inspection plan) by authorised Klever dealers.

## 5. Klever's proprietary electric propulsion – the BIACTRON system

You have purchased a 45 km/h E-bike that helps improve your day-to-day mobility with its electric propulsion. Slopes can be better managed and wind resistance can be better overcome.

Klever's electric BIACTRON system consists of the following components (image 5.1):

1. Battery
2. Motor
3. Control unit / Display
4. Motor controller
5. Torque sensor
6. Pedal Sensor
7. Charger (image 5.2)
8. Headlight
9. Indicators (on selected models)
10. Tail light

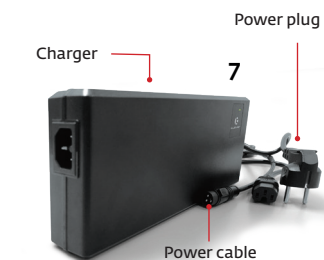
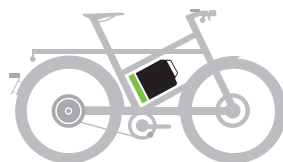
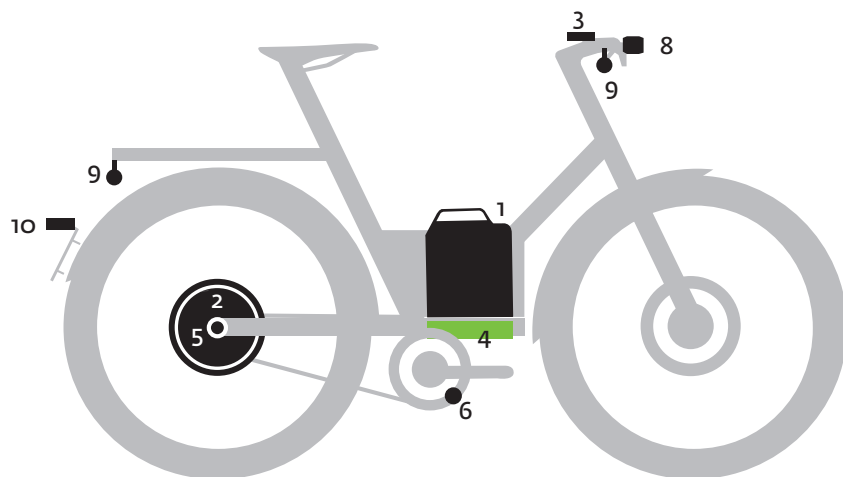


Image 5.2



Motor controller (4) and battery (1) can be in different positions. Depending on the bike model.

Image 5.1

### Powerful system benefits

The brushless Klever BIACTRON rear wheel motor comes with 3 powerful advantages:

1. Contrary to centre motor drive trains, with a motor around the bottom bracket, the direct drive rear wheel motor is whisper-quiet.
2. The motor in the rear wheel is at the end of the drive train. For this reason, the electric motor support has no negative impact on the shifting performance and the wear of the drive train.
3. Last but not least, with the motor in the rear wheel motor power and motor torque go instantly from the tyre to the road surface without any drive train losses.

Once you turn on the system and you start pedalling, the motor will support you as long as you continue to pedal, up to a maximum speed of 45 km/h.

The five levels of electric pedal support of the BIACTRON system can be selected according to the external circumstances (e.g., climbing uphill or riding with headwind) or to your personal preferences. Please note that a higher level of motor support consequently means a higher battery consumption. And reduces the range of the system and battery.

In case you ride faster than 55 km/h (e.g., downhill), automatically the recuperation of pedal energy (i.e., technical regeneration) will be activated. In that case the motor operates as a generator and partly re-charges the battery. The recuperation of pedal energy and battery capacity = REGENERATION will be explained in section 5.3. Recuperation of battery capacity.



## 5.1. Sensors & their function

This Klever 45 km/h E-bike is equipped with a torque sensor and a pedal sensor, which precisely monitor the cycling effort of the cyclist. The controller then calculates the sensor values and manages precisely the amount of electric support from the motor. Hence generating a perfect synergy between cyclist and E-bike.

In addition, you can define the amount of motor support by yourself as well, choosing between ascending levels of support (N, ECO, TOUR, MAX, TURBO). This makes the system very efficient and economic, saving power consumption and maximising range.

The additional speed sensor sets the power of the electric motor to zero once you have reached a speed of 45 km/h or more. Above 45 km/h this E-bike functions like a conventional bicycle, the only way to maintain the propulsion of the vehicle is by pedalling solely.

The electric motor support only kicks in under the condition that you actively pedal. Therefore, to get started from standstill you have to pedal. Alternatively, while you start pedalling, you can actuate the ⚡ (TURBO) button on the display in order to get the highest support. Convenient when starting uphill. The ⚡ (TURBO) button can also be used as a walk-assist, in case the speed E-bike has to be pushed while walking alongside your bike.

## 5.2 Levels of electric pedal support

The BIACTRON-system offers five levels of electric pedal support:

- N
- ECO
- TOUR
- MAX
- TURBO

Depending on topography, weather conditions and your personal preferences, you can choose the electric pedal support using ↑ (Up arrow) and ↓ (Down arrow) button and the ⚡ (TURBO) button.

| System level                                 | Amount of support                  | Situation (recommended)                       |
|--|------------------------------------|---|
| N  | No support, electric system active | Downhill                                      |
| ECO  | Low support                        | Flat roads                                    |
| TOUR   | Medium support                     | Slight hills / headwind                       |
| MAX  | Strongest support                  | Steep hills / fierce headwinds                |
| ⚡ (TURBO) while pedalling ≤ 45 km/h.         | Strongest support                  | Steep ramps / violent gusts                   |
| ⚡ (TURBO) walking with your E-bike ≤ 4 km/h. | Walk-assist, low support           | Walking with your E-bike or pushing it uphill |

**Please note! In case you actuate the ⚡ (TURBO) button, there are two scenarios:**

- 1. You walk alongside the E-bike and/or you push it out of your garage. While pushing the ⚡ (TURBO) button you will activate the Walk-assist mode and you will trigger a moderate electric motor support up to 4 km/h. In this way you can walk with your vehicle comfortably and easily.**
- 2. You are sitting on your E-bike. You are pedalling with for instance TOUR support and you need the strongest support momentarily. Push the ⚡ (TURBO) button while pedalling and you will trigger the strongest support regardless your speed (from 0 to 45 km/h). Actuation of the button while in MAX-mode, generates an additional boost for speeds below 15 km/h.**

**Please note! These 2 options will only function while you keep the ⚡ (TURBO) button pushed. As soon as you release the ⚡ (TURBO) button, the electric motor support will stop. Except in the latter case of pedalling: in that case after releasing the ⚡ (TURBO) button the level of electric motor support will go back to the preselected level (TOUR as in the example of scenario 2).**

In order to save battery power, the support level will automatically be limited to the TOUR level when the battery capacity drops to 10%. When the battery capacity drops to 5% the support level will be limited to the ECO level and in the case of a battery capacity of 2% or less the level will be N. No pedal assistance, but the electric system remains active for lighting, display, motor locking and alarm.

### 5.3 Recuperation of battery capacity: regeneration

The Klever BIACTRON system has a unique feature: the recovery of battery capacity, also known as regeneration. Every time the drive system goes into freewheel, coasting mode, the BIACTRON system will start braking the motor. The motor friction is being converted into electricity that is being restored into the battery. The freewheel mode starts once you do not pedal and roll out to a traffic light or you coast down a hill or mountain without having to pedal.

In addition, this Klever 45 km/h. E-bike has a second way to recover battery capacity. Both brake levers have a built-in brake sensor. These not only ensure that the motor assistance is immediately switched off when the brake lever is operated. When actuating the brake levers, simultaneously the regeneration function will be activated while the disc brakes start to brake the wheels.

Section 5.4.3 (Menu for settings) explains how this function can be activated and adjusted to your personal preferences. The regeneration function is a nice addition to the consumption and range of your battery. The more and longer you ride in a mountainous environment, the more you will benefit from this function. However, the recovery of electricity is limited and depends to a large extent on your riding behaviour, the environment and the chosen regeneration settings.

### 5.4 Display

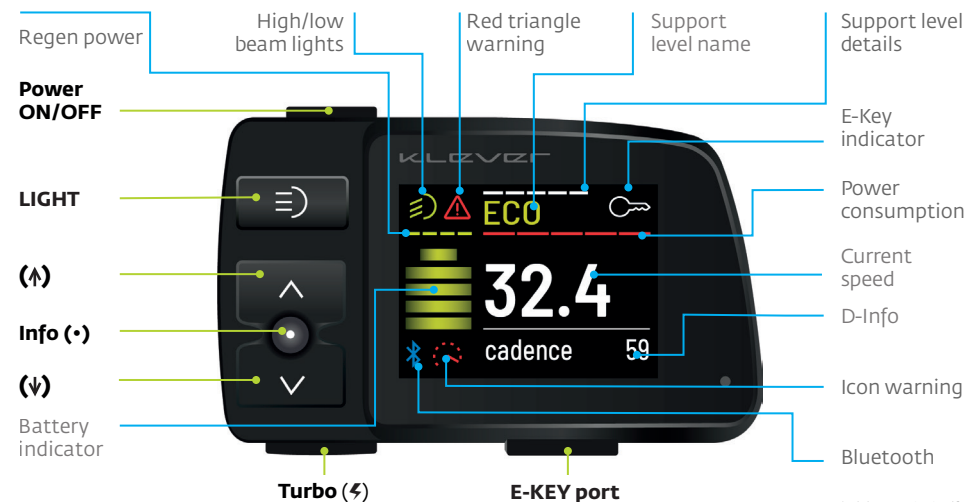


Image 5.3

\* Visit your dealer if the warning icons continue to appear on the display

With the display you start and control the BIACTRON-system. Upon purchase your Klever dealer will pair the E-bike with a set of two E-KEYS with a unique ID code. After the pairing your E-bike will only function and start with these E-KEYS with the dedicated and programmed ID code. It is impossible to activate your E-bike with other E-KEYS from other bikes.

#### Now you can start the system WITH or WITHOUT inserting the E-KEY (see section 5.4.3).

Every press of a display button will be confirmed with a short acoustic signal. As soon as you insert the E-KEY into the display (image 5.4), the system will start. With the E-KEY already in the display while the system is off, there are two ways to activate the system:

- 1. Press the On/Off button** (image 5.3), after a system check your E-bike is ready to be pedalled.
- 2. Just start pedalling, the electric system will wake up automatically.** After a system check, the electric drive will start to support.



Image 5.4

| Button         | Location        | Function   |
|----------------|-----------------|--|
| Power          | Upper left edge | On/Off system  |
| INFO (•)       | Middle left     | Switch between time, trip, Km-day, odo, soc (state of charge), kcal (calories) and cadence |
| Up arrow (↑)   | Middle left     | Increase support level   |
| Down arrow (↓) | Lower left      | Reduce support level   |
| ⚡ Turbo        | Lower left edge | Walking aid (while walking next to the E-bike)<br>Strongest support (while pedalling)      |
| Light          | Upper left      | High / Low beam lights   |

### 5.4.1. Function of each button



Image 5.5

#### On/Off button (image 5.5)

Press the POWER button and you'll boot the system. The system performs a system check and the drive system is ready to operate. The electric drive will start to support depending on the level of assistance chosen. Press this button again, the system will be turned off and all settings are being stored. Press the button again, the system starts and all previous settings and levels of support are enabled again.



Image 5.6

#### Up arrow (↑) button (image 5.6)

Press the up arrow (↑) button and you increase the support level. For instance, when the selected level is TOUR and you press the up arrow (↑) button, the support level of the motor will increase to MAX level.



Image 5.7

#### Down arrow (↓) button (image 5.7)

Press the down arrow (↓) button and you decrease the support level. For instance, when the selected level is TOUR and you press the down arrow (↓) button, the support level of the motor will decrease to ECO level.

#### INFO (•) button (image 5.8)

Press the INFO (•) button and you enter into a loop subsequently offering all rider's data on the screen. Press the INFO (•) button shortly in order to go through the available rider's data: **time, trip, Km-day, odo, soc, kcal** and **cadence**. See below. Please note: the available rider's data may vary depending on Klever model and software version.



Image 5.8

Press "INFO button" to change the D-INFO



Image 5.9

#### Time (hh:mm) (image 5.10)

The time can be adjusted in the settings menu of the display, synchronising with your smartphone or with the service tool at your Klever dealer.



Image 5.10



Image 5.11

**Trip (image 5.11)**

The number of kilometres ridden since the last reset, in this case 0.9 km. In case you want to reset the trip distance to zero at the start of a new trip, press the INFO (•) button long and select 'Reset' in the menu. Select 'yes' and confirm by pressing the INFO (•) button (see section 5.4.3 with the submenus of the display settings).



Image 5.12

**Km-day (image 5.12)**

Kilometres ridden today, starting at 00:00 AM, in this case 3.5 km. The daily mileage will be set to zero at midnight 00:00 every day.



Image 5.13

**odo (image 5.13)**

Accumulated kilometres during the entire lifecycle of your Klever E-bike, in this case 459 km. When the odo reaches 99,999 km it will be reset to 0.



Image 5.14

**SOC = State of Charge (image 5.14)**

The SOC indicates the current battery capacity, in this case 49% of the total.



Image 5.15

**Kcal (image 5.15)**

The rider's number of kilocalories burnt while cycling, in this case 12.0 kcal. For proper kcal calculation please set the rider's weight as well. Press the INFO (•) button long and select 'Rider' in order to input the rider's weight. Kcal can be reset by selecting RESET kcal in the EXTRA-menu (see section 5.4.3 with the submenus of the display settings).

**Cadence (image 5.16)**

The cadence is the rider's pedal frequency shown in rotations per minute (RPM). In other words, it shows how many full rounds your pedals make per minute. In this case 59.



Image 5.16

**⚡ (TURBO) button (image 5.17)**

This button has two functions for two different scenarios of ⚡ (TURBO) usage:

1. As a walk-assist while walking alongside your E-bike.
2. As a ⚡ (TURBO) power assist while pedalling.

Section 5.2 deals in detail with these two different ⚡ (TURBO) power scenarios.

**Please note! We recommend that you familiarise yourself with the 2 different scenarios of ⚡ (TURBO) power support prior to riding your E-bike on public roads. Try to practice these scenarios on a parking lot or in a traffic-calmed street. Once you feel comfortable using the two ⚡ (TURBO) modes, you can start riding your E-bike on public roads.**



Image 5.17

**Light button (image 5.18)**

By default, the light switches on when you start your 45 km/h E-bike. With the light button on the display, you can switch the light from low beam (green icon) to high beam (blue icon). The high beam may only be switched on if visibility is severely restricted and the E-bike is moving. As soon as a road user comes from the opposite direction, the high beam must be switched off and switched to the low beam. With the high beam, you can also give other road users a short signal as a warning.



Image 5.18

**5.4.2 Display content****Battery status (image 5.19)**

The battery icon shows the charging status of the battery. One bar represents 20% of full capacity (half bar represents 10%). If only one bar is shown, only 20% of the maximum capacity of the battery is left and the bar will turn from green to orange. It is about time to recharge the battery. When only half a bar is left and it turns from orange to red, there is less than 10% battery capacity remaining. Recharging of the battery is urgently needed.



Image 5.19

| Display                 | Capacity |
|-------------------------|----------|
| 5 bars light up green   | ≤ 100%   |
| 4,5 bars light up green | ≤ 90%    |
| 4 bars light up green   | ≤ 80%    |
| 3 bars light up green   | ≤ 60%    |
| 2 bars light up green   | ≤ 40%    |
| 1 bar lights up orange  | ≤ 20%    |
| Half bar lights up red  | ≤ 10%    |

Additionally, you can check the charging status with the LED on the battery too (see section 5.5.1 Charging of the battery). To save battery capacity, it is not possible to choose support level MAX if 10% or less battery capacity is left. With 5% or less capacity remaining, only the ECO level of support is available. At 2% remaining battery capacity the system will switch to level N.



Image 5.20



Image 5.21



Image 5.22

#### Level of motor support (image 5.20)

The white bars in the upper part of the screen show the selected level of motor support. See section 5.2 for the various levels of electric motor support and their recommended riding situations. Section 5.4.3 Submenu ASSIST/REGEN helps to set the support levels according to your personal riding preferences.

#### Speedometer (image 5.21)

The main display in the centre of the screen will show the actual riding speed.

#### Regeneration (image 5.22)

The green bars show the actual amount of regenerative power you get from the system in case you have selected the recuperation = regeneration mode in the menu. See section 5.4.3 Submenu ASSIST/REGEN for the menu of regeneration. The more bars (max 4) the display shows, the more regeneration you get back from the system.

#### Battery consumption (image 5.23)

The red bars show the actual battery consumption. The more bars (max 5) the display shows, the more your battery is being drained. Of course, higher consumption will reduce your range more rapidly.



Image 5.23

#### Brake sensor ON/OFF (image 5.24)

The brake levers of your Klever E-bike are equipped with a brake sensor. This brake sensor ensures that when you operate the brake levers, the electric pedal support is automatically and immediately stopped. An orange B icon (brake) will then appear in the bottom centre of the display (image 5.24). When you release the brake levers, the orange B disappears and the electric pedal support switches on again when you start pedalling.

It may happen that the orange B icon does not disappear, even though you have released the brake levers. You can cycle, but you will not get any electric pedal support. In that case, please contact your Klever dealer.



Image 5.24

### 5.4.3. The menu & submenus for settings

Press **INFO (•) button for 3 seconds** to enter the Settings menu.



Navigate with the arrow (↑) and (↓) buttons and confirm your choices with the **INFO (•) button**.

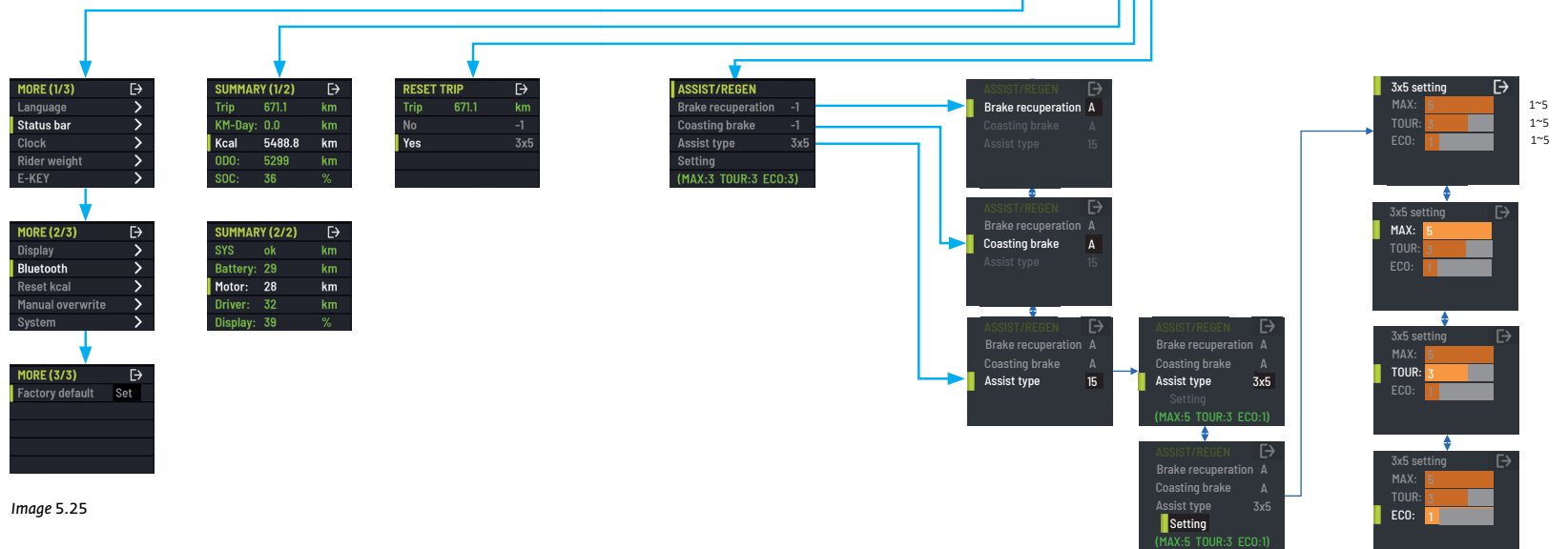


Image 5.25

## Submenu ASSIST/REGEN

### Setting > ASSIST

With the Assist submenu you adjust the electric support levels according to your own personal preferences. You have two options for Assist settings:

#### 3x5

There are 3 basic levels of ascending electric pedal support: ECO, TOUR and MAX. Each basic level can be set with 5 sublevels from 1 to 5 to meet your personal preferences. The factory default settings for each basic level are 3. The example of image 5.25 shows MAX with level 5, the strongest support and ECO with level 1 the least support. Once the levels being set, you choose with the (↑) and (↓) button the 3 basic levels ECO, TOUR en MAX in 3 steps. While riding you cannot change the settings for the sublevels. This must be done in the Assist menu again.

#### 15

With this option the electric pedal support levels increase gradually in 15 steps from 1 to 15. From ECO in level 1 (least support) you go with the (↑) and (↓) button in 15 steps linearly to MAX in level 5 (max support). This can be done during cycling and there is no need to go back to the Assist menu.

### Setting > REGEN

Regen means the regeneration and recuperation of electric energy back into the battery pack (see section 5.3 Regeneration). There are two regen functions:

- Regeneration through braking: On/Off
- Regeneration while coasting and freewheeling: On/Off

And both braking as well as coasting regeneration have 5 levels of regeneration:

- Automatic
- -1 (light)
- -2 (medium)
- -3 (strong)
- 0 (no regeneration).

The Regen factory default setting has regeneration turned off for both braking as well as for coasting. In image 5.25 the settings for brake & coasting regeneration were set to A, automatic regeneration.

## Submenu MORE

With the submenu MORE you can adjust following parameters: the language of the display, the information displayed during riding, the clock, weight of the cyclist, settings for the E-KEY and the display settings. Also, you can connect your smart phone through Bluetooth with the Klever display and you can reset trip and calories to zero.

### Setting MORE > Language

The display can be shown in the language of your choice (NE, DE, EN, FR, IT, US).

### Setting MORE > Status bar

Seven types of information can be shown on the major display by default. With a short press of the INFO (•) button you can go through the loop of these seven types of information (see section 5.4.1. Function of each button). And you can hide any of those in case you do not need them while riding.

### Setting MORE > Clock

Time can be adjusted or can be synchronised with your smart phone.

### Setting MORE > Cyclist weight

Input the cyclist's weight for the proper calculation of your calorie output.

### Setting MORE > E-KEY

The two E-KEYs supplied with your bike are being paired with the E-drive system by your Klever dealer upon purchase. You have two options for the E-KEY functionality:

#### 1. E-KEY must always be inserted

When you turn on the system the display will read "insert E-KEY". You have to insert the E-KEY to activate the system. In case you start to ride without inserting the E-KEY, the alarm will go off and the motor will be locked. Once you have inserted the E-KEY and the system is being activated, you can remove it (which we recommend) and the system will continue to operate until you turn off the system. After that the motor lock is being activated. The next time when you turn on the system again, the display will ask again for the insertion of your E-KEY.

## 2. Motor lock option YES or NO

The start-up procedure is the same: the display will ask to insert the E-KEY. In case you remove the E-KEY while the system is still on, the display will ask whether you want to lock the motor or not:

- Once you select NO, you can continue to cycle. After you have finished cycling, you turn off the system with the On/Off button. The next time when you turn on the system, you will not need the E-KEY to activate the system. However, in case you have turned on the system, and you do insert the E-KEY, then you turn back to the loop of the NO/YES-choice.
- Once you select YES, the system will be turned off instantly and the alarm and the motor lock will be activated. In case you start to ride your bike now, the alarm will go off and the motor will be locked. In case you turn on the system with the Power button, then the display will ask to insert the E-KEY again. After you have inserted the E-KEY, you can take it out and put it into your pocket. Then the option menu shows again the NO/YES-choice for the Motor Lock etc., etc.

### Setting MORE > Display > Sound

The system's acoustic sound can be turned ON or OFF.

### Setting MORE > Display > Brightness

The brightness of the display can be adjusted.

### Setting MORE > Display > Light

The turn ON/OFF-option is not available for speed E-bikes. These are Type-approval vehicles and therefore they must carry a head and tail light under all conditions. Even when standing still they must carry a stand light.

### Setting MORE > Bluetooth

By Bluetooth connection you can use your smart phone as a dashboard to show the information from the bike system.

### Setting MORE > Reset Kcal

The Kcal can be reset to zero.

### Setting MORE > Manual overwrite

This setting can be adjusted by your Klever dealer.

### Setting MORE > System

This is the system information relevant for your Klever dealer to execute a system diagnosis.

### Setting MORE > Factory default

You can set your bike back to factory default settings.

## 5.5 Rechargeable battery

Your Klever E-bike has a high-quality lithium-ion battery with a big capacity. For technical details, please refer to chapter 14. Technical data. The status of the battery can always be checked through the LED light button, next to the charging socket of the battery (image 5.26). Press the button and the LED will light up either red, yellow or green. If no light, then the battery could be broken. Please have your local dealer check the battery.

|        |   |
|--------|---|
| Red    | Capacity < 35%, battery should be charged |
| Yellow | Capacity 35 – 75%, battery can be charged |
| Green  | Capacity > 75%, battery can be charged    |

The battery is automatically protected from overheating, overcharging and deep discharging. It is very user-friendly. Nevertheless, you should consider some points in order to maximise the life and performance of the battery.

- You can charge your lithium-ion battery at any time. Even if it is not completely discharged. In practice, it is even better to charge it again after short distances.
- It is recommended to keep the battery as much as possible charged between 20% and 80%, because this best prolongs the life of its cells. Of course you can always fully charge your battery, especially in case you know that you need to go the maximum distance. However, if possible limit the number of times of fully charging and/or fully discharging your battery.
- Your battery has a guaranteed lifetime of 700 charging cycles. One charging cycle means a full charge of the battery (0 – 100% capacity). Partial charges can be done and are even recommended. See chapter 9. FAQ's and chapter 12. Warranty for more information about the battery's lifetime after 700 cycles.
- When the battery is not being used for more than 2 months, it should be recharged as a low amount of self-discharge is common.
- Avoid using or storing the battery in very hot or very cold conditions over a longer period of time (i.e., over 45°C and

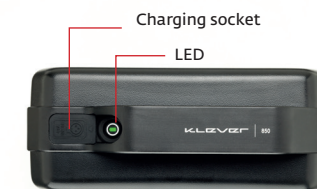


Image 5.26



below  $-10^{\circ}\text{C}$ ). The battery has a temperature protection and switches off automatically if these min. and max. temperatures are exceeded. The battery can be switched on again if you connect it at normal room temperature to the charger (image 5.27) or you press the LED button (image 5.26).

- In winter, you should never start with a cold battery. The capacity of a cold battery is significantly reduced and consequently will have a lower range.
- In case you need to park your E-bike outside for a long time during the cold season, remove the battery and store it indoors.
- Also, the battery should be charged at moderate temperatures ( $15 - 25^{\circ}\text{C}$ ). Avoid charging in direct sunlight or near heaters, as well as charging outside in winter at low temperature.
- Do not expose the battery to humidity, in order to prevent corrosion of the charging socket and the plug contacts.
- Protect the battery against mechanical damage and don't drop it. Mechanical damage can cause overheating and the battery could catch fire.
- Do not use any other type of charging unit, except the dedicated Klever chargers, since this may damage the battery and may cause overheating or fire.
- During charging, neither the charger nor the battery should be exposed to humidity, in order to prevent short circuits and electric shocks.
- Should the battery be broken or become defective, seal the contacts with tape and take it to your Klever dealer.
- Never under any circumstances open up the battery yourself. This is dangerous and could damage the battery and it may even catch fire. The warranty will be void if you do so!

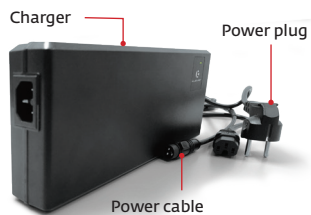


Image 5.27

**Caution!** Never place the battery on the heater and never try to heat it with a hair dryer.

**Caution!** To maintain your warranty, the battery must be charged with Klever chargers only (image 5.27).



**Do not dispose of the battery into household waste. It must be disposed of properly. It is best to take it to one of our Klever dealers, who can take care of the disposal properly.**



#### Please note! Resuming:

- **Charge the battery only with the proprietary Klever charger or any other original Klever charger.**
- **The battery can be recharged any time, even after short trips.**
- **Avoid prolonged temperatures below  $-10^{\circ}\text{C}$  and above  $45^{\circ}\text{C}$ .**
- **Never start with a cold battery.**
- **After an extended period of storage, the battery should be recharged.**
- **Protect the battery from humidity.**
- **Protect the battery from mechanical damage.**
- **Never open the battery yourself.**

### 5.5.1 Charging the battery

You can charge the battery on your E-bike (image 5.28), but you can also remove the battery from your E-bike and charge it indoors (image 5.29). Charging at any time, even after a partial discharge (e.g., after a few kilometres) is possible. There is no need to wait until the battery is completely discharged, as it has no memory effect. To remove the battery pack, refer to section 5.5.3. For the technical details of the charger please read chapter 14. Technical data. To charge the battery, do following:

- When charging the battery on the E-bike, make sure that the E-bike is turned off. Then wait 30 seconds: the headlight will then flash and the LED light on the battery will flash blue for a moment (image 5.26).
- Connect the power cord to the charger and then the plug to the wall socket.
- Once the LED lights steady red the charger is ready for charging.
- Connect the socket of the charger into the socket of the battery. The charging process will start automatically.
- Do not attempt to follow the charging process on the display. By switching your E-bike on, the charging process will be stopped automatically.
- You can follow the charging process through the LEDs on the charger and the battery (see the table on page 34).
- Once the LED on the charger constantly lights green the battery is charged.
- Disconnect the power plug from the wall first, then remove the charger lead from the battery charger.

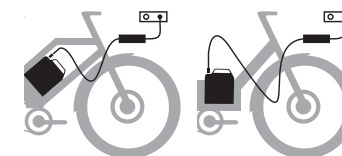


Image 5.28




Image 5.29


**The LEDs on the charger and battery document the state of charge of the battery.**


| State of charge | Charger LED     | Battery LED     | Note                               |
|-----------------|-----------------|-----------------|------------------------------------|
|                 | Flashing red    |                 | Error code: check connections      |
|                 | Steady red      |                 | Charger ready to charge            |
| 0%              | Flashing yellow | Flashing red    | Capacity very low; charging starts |
| < 35%           | Steady yellow   | Flashing red    | Normal charging                    |
| 35 – 75%        | Steady yellow   | Flashing yellow | Normal charging                    |
| 75 – 90%        | Steady yellow   | Flashing green  | Normal charging                    |
| > 90%           | Flashing green  | Flashing green  | Final charging                     |
| 100 %           | Steady green    | No LED colour   | Fully charged                      |

The charging of an empty battery will take about::

- 3.5 Hours for an 850 Wh battery with a 6A Klever charger.
- 5 Hours for a 1,200 Wh battery with a 6A Klever charger.

 **Please note! For a longer battery life, make sure that the battery is no longer connected to the charger after the charging process has been completed. Likewise, the charger should be disconnected from the power supply.**


 **Please note! Battery and charger become warm during the charging process. Ensure adequate ventilation of the battery and charger. Place the charger and battery on a clean surface. Prevent contamination of the charging sockets on the charger and the battery. Avoid humidity and direct sunlight.**

 **Please note! In case the charger is damaged, contact an authorised Klever dealer. Never open the charger.**

## 5.5.2 Battery range

The range specification of the system as indicated in image 5.30 can only be relative, as it strongly depends on:

- The lower the selected level of motor support, the bigger the range of the electric system.
- The technical condition of the E-bike (oiled chain, proper tyre pressure, etc.).
- The total weight of the system (E-bike + cyclist + luggage).
- The topography of the chosen route.
- And the weather conditions (head- or tailwind, winter or summer).

 **Please note! In winter, the range can be up to 30% less capacity due to lower temperatures.**

Battery power

e-bike

distance in Km

# 570Wh



25

45

25

75

125

175

225

275

325

65\*

30\*

# 850Wh



25

45

100\*

45\*

# 1200Wh



25

45

150\*

70\*

**AVERAGE RANGE**

Battery performance given a mixture of conditions.

**MINIMUM EXPECTED RANGE**

At low temperatures, poor weather conditions, heavy load, maximum assistance, upright riding position.

**MAXIMUM EXPECTED RANGE**

At most favourable weather conditions, low load, low assistance, low resistance and sporty riding position.

**RANGE CALCULATION BASIS**

This graph is only an indication of minimum, average & maximum ranges. Klever cannot guarantee specific ranges based on conditions that may vary per case.

Image 5.30

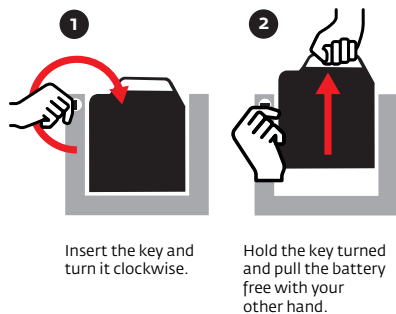


Image 5.31

### 5.5.3 Removal & mounting of the battery pack

The battery is automatically locked in place with the battery lock and thereby protected from theft. To remove the battery, first turn off the system using the On/Off button on the display. Turn the key in the battery lock clockwise up to the stop and pull out the battery with the handle from its docking station (image 5.31). Now you can charge the battery separately or store it safely for a longer break.

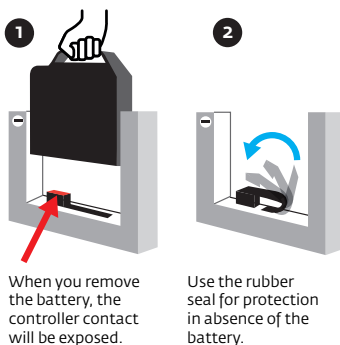


Image 5.32

Having removed the battery pack from your E-bike, please don't forget to protect the contact connector of the controller unit with the rubber cover. We advise to always use the rubber cover when the battery is taken out of the docking station (image 5.32).

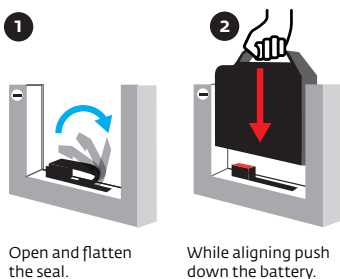


Image 5.33

#### Mounting the battery in the docking station

Insert the battery carefully. Make sure the groove of the battery casing is carefully inserted into the rail of the bicycle frame. Then slide the battery pack gently down. And push it into place with your hand until you hear the lock engage with a clear click (image 5.33). The system is ready to go again and the battery is protected against theft.

**Caution!** Do NOT ride your E-bike WITHOUT battery! Prior to starting the system, make sure to check whether the electronic contacts of the battery are engaged and locked in place. Riding your E-bike without the battery, or with the battery not properly locked in the docking station, could possibly damage the Klever BIACTRON system.

### 5.5.4 Transport of the battery pack

E-bike battery packs are subjected to the IATA Dangerous Goods Regulations, which are dealing with the safe transportation of dangerous goods in commerce. As the owner of a Klever E-bike you can transport the battery pack by road and train without limitations and any further requirements. However, when being transported by third parties (e.g., forwarders, post or via air) special requirements on packing and labelling of the battery pack must be observed. In that case, please consult an expert for the transport of hazardous materials.

Ship the battery only when the casing is undamaged. Tape or mask off open contacts and pack up the battery in such a manner that it cannot move around in the packing. And please also observe detailed national regulations.

**Please note!** In every case of transporting a broken or damaged battery, always refer to an authorised Klever dealer. The dealer can inspect the battery and, in case necessary, forward the broken battery to Klever Mobility.

## 5.6 Elementary diagnostics & error codes



Image 5.34

This section gives some simple diagnostics in case you cannot get your Klever E-bike switched on. Or in case your E-bike is switched on, but you do not get electric pedal support. You will also find a brief overview of error codes that may appear on the display. Of course, your local Klever dealer remains the most important source of knowledge and service. If you cannot solve the problem, always go to your Klever dealer as quickly as possible. Don't continue to ride your E-bike with the problem.

### The system cannot be switched on

Check the wiring and connectors to and from the motor (image 5.34) and to and from the display (image 5.35). Also check that the rechargeable battery is fully and correctly clicked into the frame and locked. See also section 5.5.3 Mounting the battery (image 5.33).



Image 5.35

### The system is switched on, but there is no electric pedal support

Check the wiring and connectors to and from the motor (image 5.34).



Image 5.36

### Warnings on your display

Three types of warning signs (icons) can appear on the display, in combination with error codes (EC's). In different combinations they provide information about the technical condition & potential technical issues you may encounter with your Klever E-bike.

1. Red triangle warning + error code
2. Red triangle warning + motor temperature icon
3. Overspeed icon + OVERSPEED! error code

Please refer to the table on the next pages for the explanation of six of these potential combinations icons & error codes.

***Please note! In case you cannot solve the pedal support problem after inspection of wiring & connections, go to your nearest Klever dealer immediately. The same applies in case you cannot solve the warning issue quickly & easily, or the message on the display does not disappear. It is unwise to continue riding your E-bike with any of these problems. In some cases, you may damage the BIACTRON system and in other cases, such as with a broken tail light, you are in violation and you will be difficult to notice for other road users. That makes you a danger to yourself and others.***

Image 5.37

**1. RED TRIANGLE WARNING**

Appears at the top centre of your display in combination with an error code (EC) at the bottom of the display. In the example of image 5.37 this is error code EC:025 BRK.

**2. ERROR CODES**

Appear at the bottom of the display and come in combination with the red triangle or with the motor temperature icon.

**3. TWO TYPES OF ICONS**

The motor temperature icon and the overspeed icon appear at the bottom centre of your display.

| Warning | Icon    | About             | Error codes                        | Description   |
|---------|---------|-------------------|------------------------------------|---|
|         | No Icon | Brake sensors     | EC:025 BRK                         | One or both brake sensors, which control the immediate interruption of electric support after operating the brake levers, are not functioning properly. Check the wiring and connectors of the brake sensors on both brake levers (image 5.36). In case you cannot solve the problem, you can continue ride your E-bike. However, keep in mind that the electric support does not stop automatically when you operate the brake levers. You now only can stop your E-bike by stopping pedalling and letting the mechanical friction of the brakes do their work. Go to your Klever dealer as soon as possible to have this problem solved.                  |
|         | No Icon | Tail light        | EC:028 BKL                         | There is a problem with the tail light. Check that the wiring from the rear fender to the tail light is not damaged. If you are unable to solve the rear light problem yourself, go to your Klever dealer immediately. And keep in mind that it is mandatory that you carry properly functioning head and taillights on a 45 km/h speed bike during the day.  |
|         | No Icon | Battery           | EC:128 BAT                         | There may be a problem with the contact between the battery and the frame's docking station. Remove the battery from the docking station. Then carefully insert the battery into the frame and push it into place with your hand until you hear the lock engage with a clear click. See also section 5.5.3 Mounting the battery.  |
|         | No Icon | Biactron System   | EC:144 SYS, EC:155 SYS, EC:159 SYS | These are error codes dealing with the BIACTRON-system and they need to be diagnosed by your local Klever dealer.   |
|         |         | Motor temperature | No error code displayed            | In case the motor temperature rises above 125 °C, the red triangle will appear at the top centre of the display in combination with the motor temperature icon at the bottom of the display. The motor temperature may rise if you ride uphill for a long time with the highest level of electric pedal support. Let the motor cool down. Once the motor temperature has dropped below 100 °C, the icon will disappear and you can continue to ride your E-bike.  |
| No Icon |         | Overspeed         | OVERSPEED!                         | In case the REGEN voltage to the battery (see section 5.4.3) exceeds 60 V for more than 1 second, the icon will appear with the text OVERSPEED! at the bottom of the display. This can occur at very high speeds downhill. And the icon warns you to slow down your speed. The overvoltage can possibly damage the BIACTRON system. If the voltage has dropped below 60 V for more than 1 second, the icon with the text will disappear automatically.<br><br>Please note: Sometimes the icon with OVERSPEED! text may also appear if the contact between the battery and the frame's docking station is not stable (see also error code EC:128 BAT above). |

## 6. Bicycle parts of your Klever 45 km/h E-bike

This chapter explains function, maintenance, service and operation of the conventional bicycle components which are not part of the electric drive system. You will find additional information in the accompanying manuals of the component suppliers.



Image 6.1



Image 6.2

### 6.1 The 45 km/h E-bike, a Type-approval vehicle with dedicated equipment

As explained in chapter 2. Type-approval (and further detailed in the chapters 10. & 11.) this Klever X Pinion 45 is not a regular E-bike, it is a 45 km/h E-bike. It is an electrically powered vehicle with a maximum speed of 45 km/h classified in the L1e-B vehicle category. Consequently, it is a Type-approval vehicle which has to comply with the European Regulation EC 168/2013. Therefore, the X Pinion 45 comes with special equipment: a well audible horn, a brake light and a wing mirror which are in line with the higher speed of this vehicle (up to 45 km/h) and the Type-approval requirements.

#### 6.1.1 Horn

The horn is mounted underneath the handlebar (image 6.1) and can be actuated with a pushbutton at the LH-side of the handlebar, underneath the LCD display (image 6.2). With this horn you can notify other road users of your presence on the road, especially under unclear and crowded traffic conditions.

#### 6.1.2 Brake light

The tail light has an integrated brake light. When actuating your brake levers the brake light in the rear will start to light with higher intensity than the regular tail light (image 6.3). In this way the traffic coming from behind will be notified that you are braking and your speed is decreasing.



Image 6.3

#### 6.1.3 Wing mirror

Your speed E-bike is equipped with a wing mirror on the LH-side (UK RH-side) of your handlebar (image 6.4). The mirror can be adjusted by hand according to your preferred position. With this mirror you will have eyes on the road users behind you, especially those who are faster than you and who are in the process of overtaking you. Consequently, you don't need to turn around your head and you are able to keep your attention on the traffic in front of you and on the traffic behind you at the same time.



Image 6.4

#### 6.1.4 Direction indicators

Unlike horn, brake light and wing mirror which are mandatory according to Type-approval regulations, direction indicators are not mandatory. Nevertheless, indicators offer additional comfort and safety to riders of speed E-bikes and to other road users as well. The X Pinion 45 model has two sets of indicators; one set at the front of the E-bike (image 6.5) and one set at the rear fully integrated with the tail light and license plate (image 6.6).

The operation of the two pushbuttons on the left-hand side underneath the handlebar and next to the pushbutton for the horn is self-explanatory: left-hand button for turning left and right-hand button for turning right (image 6.2).



Image 6.5

### 6.2 Saddle and handlebar adjustment

This Klever 45 km/h E-bike comes in two frame sizes (M = Medium and L = Large). Fitting the frame size to your body can be done with adjustment of saddle, stem and handlebar. Your dealer can do this on the spot. In case you want to do the settings for yourself or for another cyclist, the adjustment is briefly described below:

**! Caution! All work described requires the expertise of a bicycle mechanic and appropriate tools. Use a torque wrench to tighten the bolts and never exceed the maximum torque of the bolts. All necessary tooling and information on the recommended torque can be found in chapter 14. Technical Data.**



Image 6.6



Image 6.7

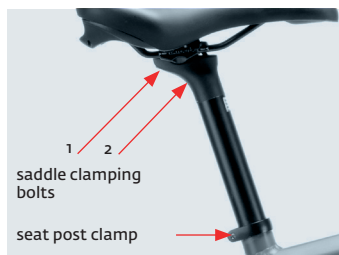


Image 6.8



Image 6.9



Image 6.10

### Adjustment of the saddle height

You will find the optimal saddle height if you touch the pedal with the heel of your stretched leg, when sitting on the saddle. Without having to overstretch your leg and hip. Alternatively, you bring the ball of your foot to the centre of the pedal. Your knee should be slightly bent (image 6.7).

Loosen the seat clamp bolt with a 6 mm. Allen key (image 6.8) and move the seat post with the saddle to its proper height. Align the saddle with the frame using the saddle nose and the bottom bracket or the frame tube as references. Fasten the bolt of the seat clamp again and check the correct height of the saddle. Repeat the process if necessary until you find the correct saddle height.

The distance between saddle and handlebar (by pushing the saddle forward or backward on its rails) and the saddle angle are adjusted with the 2 saddle clamping bolts of the seat post and a 5 mm. Allen key (image 6.8). Generally, the saddle should be positioned horizontally.

**!** Please note! Pay attention to the recommended torque when tightening the various bolts (see chapter 14. Technical Data).

**!** Caution! The seat post may never be installed over the minimum insertion mark (image 6.9). Otherwise, the post could possibly break during riding, which could lead to injuries.

### Handlebar adjustment

The handlebar can be adjusted to your personal preferences, by changing the angle of the handlebar stem and the height of the handlebar. Your Klever dealer will be happy to set the handlebar to your liking. However, in case you intend to adjust the handlebar by yourself, then proceed as follows:

- Loosen the big pivotal M8 bolt of the adjustable stem with a 6 mm. Allen key and adjust the angle of the stem (image 6.10).
- With the angle adjustment you can move the handlebar towards the rider as well as further away from the rider. Once you find the proper position of the handlebar, tighten the M8 bolt with the correct torque.
- After adjusting the stem, you may have to adjust the position of the handlebar too. Loosen the 2 M5 bolts on the bottom side of the head of the stem with a 4 mm. Allen key (image 6.11). Tighten the 2 M5 bolts with the proper torque after adjustment.
- Please note that the adjustment of the angle of the handlebar may have altered the position of the brake

levers, the display and the shifter too. If necessary, you can adjust the position of these components as well. Loosen the Allen key bolts and screws of the display, brake levers and shifter. Turn display, brake levers and shifter into the correct position. And keep in mind that your hands should be resting on the handlebar in a relaxed way and should not be forced into an unnatural position (image 6.12). Finally tighten the Allen key bolts with the correct torque.

- You may have to repeat these steps a couple of times in order to find the most convenient position according to your liking and needs.
- The standard extension length of the Klever adjustable stem is 90 mm. For those who wish to have a sportier riding position, a 110 mm. extension length is available. Changing the stem is a job which needs to be left to an authorised Klever dealer.

**!** Caution! Please check whether the handlebar is correctly tightened. You should not be able to twist the handlebar while putting full force on the grips.



Image 6.11

## 6.3 The suspension front fork

The suspension front fork of your Klever 45 km/h E-bike is pre-set with factory settings. However, it has three adjustment options with which you can set the suspension to your own preference. You can have your Klever dealer do this, but you can also adjust a number of settings yourself.

### Setting sag (precompression)

Sag is the amount of travel the suspension compresses when you sit on your E-bike. The compression depends on the combination of your weight (+ luggage) and the amount of air pressure in the lefthand fork leg. The air pressure defines how stiff or smooth the suspension responds to the unevenness of the road surface. The rule of thumb says that 20% sag of the total travel of the suspension is a proper way to start the setting (refer to the table below).



Image 6.12






Image 6.13

| Weight kg. | Air pressure Psi |
|------------|------------------|
| < 63       | 100 – 120        |
| 63 – 72    | 120 – 135        |
| 72 – 81    | 135 – 150        |
| 81 – 90    | 150 – 170        |
| > 90       | > 170            |
| Max Psi    | < 265            |

Varying the air pressure in the lefthand fork leg, you can:

- Make the suspension more smooth = lower air pressure = more sag (e.g., 25% of total suspension travel).
- Or make the suspension more firm and more direct = higher air pressure = less sag (e.g., 15%).
- It is advised not to have more than 30% sag.

 **The setting of the air pressure of your front fork requires the use of a dedicated suspension pump for front forks and rear shocks. Never use a high-pressure pump or a foot pump. This could damage the internals of the fork leg. Setting of the sag can be best done at your dealers. The workshop has the proper tools.**

### Setting Rebound

With the rebound switch at the bottom of the righthand fork leg you decide how smooth or how direct the fork after compression bounces back (image 6.13). Going from the neutral position in the centre, the switch has two clicks to the right in order to make the rebound slower and more sluggish. And from the neutral position the switch has two clicks to the left in order to make the rebound more fast and smoother. This setting does not require any tooling and it can be done any time by yourself.

### Lock-out

With the lock-out on top of the righthand fork leg you can lock the suspension (image 6.14). In position A the suspension is fully functional. In position B the suspension is fully locked. The Lock-out function is best used on smooth and straight roads only. On badly paved roads it is always best to use the full functional amount of suspension travel.



Image 6.14


### Maintenance

Have your dealer check the front fork during the annual service inspection. Some basic tips for your home maintenance:

- Clean the smooth surfaces of the stanchion tubes with a cloth and a little water.
- After cleaning spray some water-repellent oil on the stanchion tubes for lubrication of the bushings and for a plush suspension function.




Image 6.15

 **Caution! Never use a high-pressure cleaner or aggressive detergents for the maintenance of the front fork. Pay attention to the maintenance instructions in the manual of the fork supplier.**

## 6.4 Disc brakes

Your E-bike has disc brakes (image 6.15) with an excellent braking performance, even under rainy weather and other bad weather conditions. They are low maintenance and do not wear the rim. While actuating the brake lever, the oil pressure is being transmitted through the hose into the brake calliper. This makes the brake pads contact the disc rotor.

Both brake levers have a brake switch sensor. When the brake lever is being actuated the brake switch instantly cuts off the electric motor support and at the same time activates the regeneration function (see section 5.4.3 Submenu ASSIST/REGEN).

 **Please note! New brake pads must be run-in in order to achieve their best deceleration values. By braking at least 30 times from approximately 30 km/h to complete standstill the brake pads will achieve their maximum brake power**

### Squealing brakes

Not properly run-in brakes do not reach their best deceleration values and are prone to vibrations and loud squeal. The brake pads and disc rotors must be regularly checked for wear. If rotors and brake pads are worn, they will need to be replaced. In case the brake performance is getting less and you are losing brake power or you can push the brake lever through to the handlebar without any braking effect, the brake system must be bled (purged). Bleeding and the replacement of worn brake pads and rotors is better left to authorised Klever dealers.

**!** **Caution!** In case the brake performance is decreasing or the system shows signs of leakage, do not continue to ride your E-bike and go and see your local Klever dealer immediately.

**!** **Caution!** Oil or grease on the brake pads and disc rotors will reduce the effect of the brake substantially. Prevent in any case, while cleaning the bike and lubricating the chain that oil or other liquids can contaminate the brake pads and disc rotors. Contaminated brake pads cannot be cleaned and need to be replaced immediately. You can clean the disc with brake cleaner or warm water and a little detergent if necessary.

**i** **Please note!** Ride more cautiously under humid and rainy conditions because the stopping distance could be longer.

More information on disc brakes, the replacement of brake pads and disc rotors and the wear of these components, can be found in the dedicated manual of the brake supplier.

## 6.5 Belt drive train & 9 speed gearbox

Your Klever E-bike comes with a user-friendly and low maintenance drive train. Instead of the traditional drive train with chain and derailleur gear, it is equipped with a belt and a fully enclosed 9 speed gearbox. With this unique drive train, you never have dirty pants again.



Image 6.16

### 6.5.1 Belt

The belt drive (image 6.16 & 6.17) is whisper-quiet while pedalling. In addition, the belt drive is very low maintenance because it does not require any grease or lubrication at all. In fact, grease and lubrication should be avoided! Occasionally cleaning the belt with some water will suffice. Because the belt does not need any grease it will hardly attract any dirt and debris from the street.

**🔧** **Your local Klever dealer has the proper tools for the tensioning of the belt and the checking of the belt wear. We strongly recommend that you leave all work on the belt, including disassembly and assembly of the rear wheel, to your Klever dealer.**

**!** **Caution!** Just like with a chain drive, keep your fingers away from the belt drive. Once your fingers get pinched while the chainwheel is turning, this may lead to serious accidents



Image 6.17

& injuries. The upper part of the belt is covered with a belt guard, which has the same functionality like a chain guard. It protects your pants and prevents them from getting stuck in between the belt and the chain wheel.

**i** **Please note!** If you do need to touch the belt, for instance in order to clean it or to mend a puncture, you need to make absolutely sure that the BIACTRON-system is turned off and the battery pack taken out of the docking station.



Image 6.18

### 6.5.2 9 Speed gearbox

The Pinion gearbox (image 6.16 & 6.18) is fully enclosed and runs with low maintenance in a whisper-quiet oil bath. The 9 speeds are offering a gear range of nearly 570%. With the gear ratios of your E-bike and a pedalling cadence of 60 revolutions per minute, you cycle as easy in the smallest gear with ECO motor support 8 km/h. uphill as with the biggest gear with MAX motor support 40 km/h on a flat road. All intermediate gears from 1 (smallest) to 9 (biggest) are well balanced with ascending steps of 24%.

With the twist shifter integrated in the righthand grip you shift the gears (image 6.19). You can shift multiple gears in one time. Even without pedalling or when reverse pedalling. You can shift under load. However, in case you take the load off the pedals you will have a smoother shift. More specifically in the following cases:

- When shifting down from a bigger to a smaller gear;
- When shifting up from the 3rd to 4th gear;
- When shifting up from the 6th to 7th gear.

In general shifts will go directly and smoothly. You choose any of the 9 gears with the 9 digits on the gear display on the side of the twist shifter (indicating the gear you are in). The digit should be aligned with the >> icon (image 6.19). In case the shifting does not function smoothly and the digit of the chosen gear is not well aligned with the gear display, then you should check the settings of the shifting cables:

- Check the cable terminals of the 2 shifting cables (image 6.20). There should be no play between cable terminal and cable stop. At the same time the cable terminal should not be tensioned.
- The twist shifter can have a little play in the direction of turning, not more than 2 mm. back and forth.

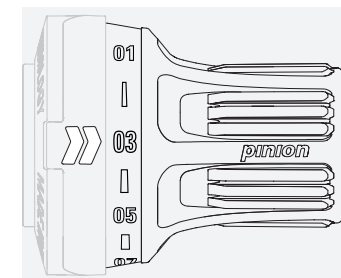


Image 6.19

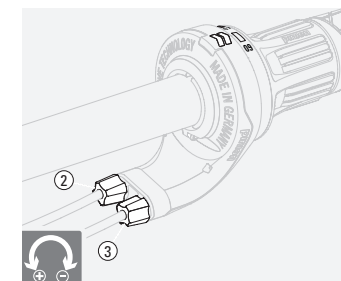




Image 6.20

- In case there is play on the shifting cable terminals, increase the cable tension. Turn both adjustment screws a quarter turn counter clockwise (image 6.20). Check the cable tension and repeat in case necessary.
- In order to release the cable tension, you turn both adjustment screws a quarter turn clockwise.
- Once you have reached the proper cable tension, then shift to the 9th gear and check whether the digit 9 is properly aligned with the >> icon on the gear display.
- You will notice that while turning adjustment screw 2 (image 6.20) a quarter turn clockwise + adjustment screw 3 a quarter turn counter clockwise, the twist shifter will rotate a bit into the direction of the icon for the 8th gear.
- Vice versa, turning adjustment screw 2 a quarter turn counter clockwise + adjustment screw 3 a quarter turn clockwise, the twist shifter will rotate a bit into the direction of the digit 1. In this way you will be able to reach the proper settings for smooth shifting.

 **Please note! The smooth functioning of the two shifting cables is essential for the overall functioning of the gearbox. In case the shifting cables are old, damaged or worn out, then they should be replaced. This is a service job for a specialist. You better turn to your local Klever dealer.**

 **Please note! The service interval for the oil change of your gearbox is 10,000 km. or 1 year. This too is a service job for a specialist with workshop experience. Please ask your Klever dealer for the oil change.**

More information on the belt drive and the gearbox can be found in the dedicated manuals of the suppliers.

## 6.6 Lighting

Your Klever 45 km/h E-bike has a lighting system which corresponds with the Type-approval regulation and has an official mark: indicated by the letter E, and a six-digit number. Power supply for the lighting comes directly from the battery pack of the vehicle. The headlight is a LED (image 6.21) with high output and stand light function. The tail light is a bright LED with stand light function too, with integrated brake light and license plate illumination (image 6.22). On the upper left corner of the display, you have a light button to manually switch from low beam to high beam. Once you release the




Image 6.21



Image 6.22

button, the headlight changes from high beam to low beam again (see section 5.4 Display).

If there is a failure in the lighting system, please check all contacts at headlight and tail light. Check all wires for damage. In case you don't find any errors, you should be looking for repair at an authorised Klever dealer immediately.

 **Caution! A non-functioning light is illegal and endangers your life on the road. E-bikes without lights are easily overlooked in the dark. You run the risk of serious accidents.**

More information on the lighting can be found in the supplier's manual.

## 6.7 Wheels and tyres

Wheels are one of the most stressed components of your vehicle. They contact the road; they provide propulsion and they absorb the road bumps. Due to the heavy use, they should be regularly checked. In case of radial or axial play or broken spokes, the wheels should be repaired or trued by an authorised Klever dealer.

For the replacement of a tyre, the wheels must be removed from your E-bike. Also, for the mending of a puncture this could be necessary. Nevertheless, removal and installation of the rear wheel of a belt drive is a highly specialist job, requiring experience and professional tools. Restoring the correct tension of the belt, after installation of the rear wheel, in particular is essential for the proper functioning of the belt drive. We therefore recommend that you have the disassembly and assembly of the rear wheel carried out exclusively by the workshop of your Klever dealer.


 **Caution! In case you need to work on the drive train or the rear wheel of your E-bike, you need to make absolutely sure that the BIACTRON-system is turned off and the battery pack taken out of the docking station. If not turned off, your fingers could get stuck between or pinched by chain, cassette and chain ring. This could lead to serious injuries.**



Image 6.23

### Removal of the front wheel

- Loosen the thru-axle of the front wheel with a 6 mm. Allen key. Turn the Allen key counter clockwise. Now take the thru-axle out (image 6.23).
- Pull the front wheel out of the front fork.
- Block the brake pads of the disc brake by inserting the enclosed pad separator into the calliper (image 6.24).
- The assembly of the front wheel is done in reverse order.
- While assembling, insert the disc brake rotor carefully between the two brake pads.
- Pay attention to the correct torque of the thru axle (max 13 Nm).



Image 6.24

**!** **Caution! Disc brake rotors can be very hot after riding & braking. Let them cool down prior to disassembly of the wheels.**

### Tyres

The tyre size can be found on the sidewall. It is printed in millimetres and inches: 27.5" x 2.20" and 56 – 584 mm. The wheel has a diameter of 584 mm. (27.5") and a width of 56 mm. (2.20").

**i** **Please note! The recommended tyre pressure is indicated on the sidewall of the tyres (3.5 – 5.5 bar; 50 – 80 Psi)**

**i** **Please note! Regularly check the correct tyre pressure and pressurise your tyres if necessary. The tyre uses an inner tube with Schrader valve. So, you can check and inflate the tyre at any gas station.**

**!** **Caution! Above or below, never exceed the recommended air pressure range. The tyre and the tube can be damaged and this may lead to sudden loss of air with risk of an accident. Too low tyre pressure causes higher rolling resistance. As a consequence, this reduces the range of your battery.**

### Disassembly, repair & assembly of the tyres

Regularly check the tyres for cracks and for its thread pattern height. In case you find that cracks or sharp objects have damaged the fabric of the tyre or the thread pattern is no longer sufficient, replace the tyres. If in doubt, ask your Klever dealer who can verify the tyre and replace it.

In the case of a flat tyre, do as follows:

- Always use plastic tyre levers.
- Remove the wheel as described above.
- Deflate the tyre and push a tyre lever underneath the tyre bead opposite of the valve and lift the tyre over the rim flange.
- Push the second tyre lever underneath the tyre bead in a distance of 10 cm. from the first one (image 6.25). If the tyre is still very tight around the rim, then use a third tyre lever as well.
- Now, you can lift the tyre over the whole circumference of the rim with the help of one of the levers. The inner tube can be removed.
- In case the leak cannot be found easily, hold the inflated inner tube into a bucket of water and look for the rising air bubbles.
- Repair the tube according to the instructions on the repair kit. Or if necessary, replace it. In case of replacement, make sure you buy the correct size inner tube.
- Check the inside of the tyre for sharp objects that could have caused the puncture and remove them. If the fabric of the tyre is damaged, replace the tyre too. Start the mounting of the inner tube by inserting the valve into the valve hole in the rim and inflate the tube with very little air pressure until it is wrinkle-free.
- Now mount the inner tube without any creases underneath the tyre (image 6.26).
- Starting opposite of the valve, lift the tyre bead over the flange of the rim and pull it deep into the rim. Lift the rest of the tyre by hand over the rim's shoulder. Do not use tyre levers, as this may damage the inner tube.
- Push the valve a little back into the tyre, so that the bead of the tyre is correctly seated in the rim.
- Pull the valve back again and inflate the inner tube to the recommended tyre pressure.



Image 6.25



Image 6.26



Image 6.27

## 6.8 Luggage carrier and transport of luggage

Your Klever E-bike has a robust and durable aluminium luggage carrier (image 6.27). The carrier is compatible with the majority of all standard panniers, and you can use it in conjunction with an extensive range of accessories. Please note, the maximum load capacity of the luggage carrier is 25 kg.



**Please note! When transporting luggage make sure that you do not exceed the total maximum permitted weight of 150 kg., being the combination of speed E-bike + cyclist + luggage.**



**Caution! The additional weight of luggage on your rear carrier changes the handling of the bike and makes the required braking distance longer as well.**

## 6.9 Anti-theft protection

This Klever E-bike comes with a motor lock and immobiliser combined with an acoustic alarm system. The battery can only be removed from its docking station by unlocking the battery lock with the key (see section 5.5.3 Removal and mounting of the battery pack). We recommend to also use a robust and high-quality chain lock in order to be able to lock the vehicle to solid fixtures.

## 6.10 Accessories

Useful accessories can enhance the functionality and comfort of your E-bike and they can increase your riding pleasure too. These accessories are available at your Klever dealer.



**Please note! Accessories must be Type-approved accessories compatible with your Klever 45 km/h E-bike. Incompatible accessories may influence and alter the riding characteristics of your bike and can lead to accidents. Best ask your dealer for information and advice.**

## 7. Wear, maintenance & inspections

### Wear

Your Klever E-bike consists of many components, which are all subject to normal wear due to their function. Therefore, all following components should be regularly checked and if necessary, replaced immediately:

1. **Disc brake rotors & pads** are put under stress during each braking operation and wear as a consequence. Therefore, they must be periodically inspected and if necessary, be replaced.
2. **Tyres & inner tubes** are subject to function-related wear and should be checked regularly. The air pressure and the depth of the tread profile must be checked regularly too. The air pressure should always be at the manufacturer's recommended operating pressure, which is printed on the tyre sidewall. In case the tread profile of the tyre is no longer deep enough or the tyre has cracked sidewalls, it should be replaced.
3. **Rims & spokes** are stressed while braking or riding over obstacles. Regularly check the concentricity of the wheel and the spoke tension. If the wheel has radial or axial play, this should be readjusted. In the event of spoke breakage, the broken spoke should be immediately replaced and the wheel should be re-trued.
4. **Chain, sprockets, chain wheels & derailleur pulley wheels** wear out normally. Regular cleaning and lubrication of these components will extend their service life substantially. They should, however, in case they are worn be replaced.
5. **Belt, rear sprocket, front belt wheel** are very robust and wear less than the components of derailleur drive trains. Unlike derailleur drive trains, belt drive trains should NOT at all be lubricated. Just clean these components every now and then with some water. During the annual inspection your dealer should check the tension of the belt and the wear of the individual components.
6. **Shifting cables & brake hoses** must be maintained regularly and replaced if necessary. Especially in case your E-bike is often parked outdoor and exposed to the weather.

7. **Hydraulic oils & lubricants** change over time and lose their effectiveness. Therefore, all lubrication points are to be regularly cleaned and re-greased in order to minimise the wear. In case the actuation of the brake levers starts to feel less direct and braking feeling becomes spongy, then the hydraulic brakes need to be bled by your Klever dealer.

### Maintenance

Regular maintenance and care guarantee a longer lifespan of your E-bike. You should regularly carry out simple cleaning and care yourself. And let your authorised Klever dealer do the necessary inspections. Never clean the vehicle with a high-pressure cleaner or a steam cleaner, as water may enter bearings, motor and electronic contacts. Water could damage these parts due to corrosion and short circuits. Clean your bike with a damp cloth and a mild detergent. Make sure that no electrical contact gets wet. The contacts can be maintained and conserved from time to time with a little care oil. Contact spray is too aggressive and doesn't preserve. All parts liable to corrosion should be maintained and preserved appropriately.



**Caution! During cleaning and lubrication, avoid contact with oil and fat on the brake pads and disc brake rotors. The stopping power might deteriorate and could represent a serious risk.**



**Please note! Always ensure that the tyres are inflated within the manufacturer's recommended operating pressure, which can be found on the tyre's sidewall. Never go over or under the recommended range of tyre pressure.**

The entire electrical system of your E-bike, such as the motor, the sensors, the wiring harness and the battery are maintenance-free. In case you meet unexpected problems with the system, consult an authorised Klever dealer.



**Caution! Do not open the motor, the display or the battery. It is dangerous and this will immediately void the warranty.**

### Inspections

In order to keep your E-bike always roadworthy and updated to the latest technical status, it should be inspected regularly. We recommend after 500 – 1,000 km. or within 1 year after purchase to carry out the first inspection. Any further inspections should be carried out after every 2 to 3,000 km. or at least once a year.



**Inspections should be executed by authorised Klever dealers.**



**Caution! In case inspections are not carried out or executed unprofessionally, this may significantly impair the functions of your E-bike or may even lead to accidents.**



**Please note! With regards to spare parts:**

- **Klever 25 km/h E-bikes: make sure to only use original Klever spare parts for replacement and upgrades.**
- **Klever 45 km/h Speed E-bikes. Since these are Type-approval vehicles, make absolutely sure to only use original Klever Type-approved spare parts for replacement. The same applies to upgrades (e.g., winter tyres or suspension seat post). Only select components from the Klever Type-approval list.**

**In general: in case you are not sure which spare parts to use, always contact your official Klever dealer.**

## 8. Storage & transport of your Klever E-bike

### Storage

Your E-bike should always be stored in a dry, covered place in order to minimise the effects of weather and avoid direct sunlight. In case you do not ride your Klever E-bike in wintertime, you should consider following:

- Store your E-bike well cleaned and lubricated in a dry place and cover it with a tarp. Winter storage in a garage is not ideal. Salt from salt spraying may enter your garage with your car. And this could cause corrosion of your E-bike.
- Protect the electrical contacts with a little care oil.

- The battery should be stored separately, ideally at a temperature of 10 to 15 °C in a dry place. And try to maintain the battery charge during storage between 20% to 80% (see section 5.5.1 Charging of the battery).

### Transport

You can transport your E-bike by car or train. For transport by car, we recommend to use a tow bar bike rack, which is specifically designed for the transport of E-bikes and for heavier loads. Ask your Klever dealer for more specific recommendations.

Do not transport your E-bike on a roof rack. The heavier weight and the special frame tubes will make stable fixing of your E-bike on a roof rack impossible. In addition, the weight of the vehicle is usually higher than the maximum weight limit of the roof rack.

Prior to transporting your vehicle with a tow bar rack, you should remove the battery pack as well as other non-fixed accessories such as air pump and panniers. Additional protection should be given to electrical contacts of the battery connector on the frame. This can be done with a plastic bag to protect those parts from moisture and rain. Air flow may cause the moisture to enter into the electric system.

In case your car is big enough, then it is best to transport your E-bike inside the car.

Transportation of your E-bike by air will be nearly impossible. Unless you want to transport your E-bike without battery. For airlines these batteries are classified as IATA Dangerous Goods and consequently will not be transported. To be sure, ask your airline under which conditions the transport of the battery may be allowed. However, this could be quite expensive. For more information on the transport of the battery, please check section 5.5.4. Transport of the battery.

## 9. FAQ's

### How far can I travel with one battery charge?

This depends on the outside temperature, the topography of the terrain, the technical condition and total weight of the bicycle. Tyres with low air pressure or high weight or riding in hilly terrain, reduce the range (see section 5.5.2. Battery range).

| Battery  | Range       |
|----------|-------------|
| 850 Wh   | 45 – 130 km |
| 1,200 Wh | 70 – 180 km |

This is a guesstimated indication of the range you may expect under similar conditions:

- Outside temperature 12 – 30°C.
- Flat and slightly hilly terrain.
- Total system weight between 95 – 105 kg (cyclist's weight 70 – 80).
- Little to no wind.

### Must the battery be empty before I can charge it?

No, you can charge the battery at any time, even if it is only partially discharged. Actually, for a longer battery life it is better to never fully drain the battery and never fully recharge the battery (see section 5.5 Rechargeable battery).

### How can I protect my Klever E-bike from theft?

Your E-bike comes with starter and motor immobiliser. This electronic lock is combined with an acoustic alarm system, to be activated with the E-KEY and Lock-button on the display. The battery can only be removed from the frame by unlocking the battery lock with the key. We recommend to also use a high quality, robust chain lock in order to lock your E-bike to the solid fixtures.

### Can I ride my E-bike in wintertime?

In general, there is no problem whatsoever to ride your E-bike at low temperatures. Store your battery in a warm place before you start your journey. Keep In mind that in wintertime at low outdoor temperatures the range may decrease by 30%.

### Can I transport my E-bike via air?

Because E-bike battery packs are being classified as IATA Dangerous Goods for transport via air, many airlines refuse to transport the battery. In individual cases you may want to ask your airline, under which conditions and costs transport may be possible.

### Do I need a liability insurance and do I need to wear a helmet?

Yes, your Klever 45 km/h E-bike is a class L1e-B Type-approval vehicle with a maximum 45 km/h speed. Therefore, you do need a dedicated liability insurance. You do need to wear a helmet approved for speed E-bikes. Your vehicle must have a license plate and you do need to own a driver license. Your Klever dealer can advise in finding the proper insurance and helmet.

### What to do with a defective battery pack?

Defective batteries do not belong in household waste and must be disposed of properly. It is best to take it to an authorised Klever dealer.

### How many times can I charge my battery?

We guarantee that the battery after 700 full charge cycles or two years after the date of purchase still has 60% of its original capacity. Of course, you can charge the battery more often or use longer than two years. Because of the natural aging process over time the battery loses more and more capacity though. Moreover, in case you register your Klever battery on our website ([www.klever-mobility.com](http://www.klever-mobility.com)), Klever extends the warranty term for the battery from 2 to 3 years. Within this term we guarantee that your battery still has 50% of its original capacity after 500 charging cycles. See chapter 12. Warranty too.

### Does the warranty void, in case I do not stick to the recommended time intervals for inspections?

No, the warranty does not void. We recommend, however, for the vehicle's service life and for your own safety to carry out all recommended inspections.

### Can I charge the battery with another charger?

No, the battery may only be charged with the dedicated, supplied Klever charger or other Klever chargers.

### Can I use generic bicycle spare parts for my E-bike?

No, you can only use Type-approved spare parts for replacement. The same applies to upgrades (e.g., winter tyres or suspension seat post). You can only select components from the Klever Type-approval list. In case you are not sure whether to use Type-approved spare parts, always contact your official Klever dealer.



## 10. Klever X Pinion 45 Type-approval & EC Certificate of Conformity (CoC)

### The Manufacturer:

Klever Mobility Inc.

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Hereby confirms for following products:

### X Pinion 45, model year 2023

Conformity with the applicable European Regulation EC 168/2013 for vehicles classified in the category L1e-B. Your X Pinion 45 comes with a Klever Certificate of Conformity (CoC) with which your vehicle can be registered. Klever will register your X Pinion 45 at your local road safety authority (e.g., KBA in Germany, DIV in Belgium, RDW in the Netherlands, DREAL in France or DVSA in the United Kingdom). After registration, your Klever dealer will receive the license plate and the code for the name of the registrant. Your dealer will then assemble the license plate and ascribe the vehicle to your name and to your liability insurance. With the code for the name of the registrant you can arrange for the assignment of this X Pinion 45 to your name and insure yourself as well.



**Please note! With a maximum speed of 45 km/h. this X Pinion 45 is NOT a regular electric bicycle, but it is a so-called speed E-bike. According to the Type-approval Regulation it is an L1e-B vehicle and therefore it has to comply with different road traffic regulations and it has a different position and different place within the traffic. Make sure you understand the local road traffic and safety regulations in your own country. Keep in mind that there are local differences between Belgium, France, Germany, the Netherlands and the UK. Also, you will need a license plate (as proof of your local registration & insurance), a liability insurance and a driving license. Moreover, you will need to wear an approved 45 km/h speed E-bike helmet as well.**



**Furthermore, a 45 km/h speed E-bike must be equipped with a well audible horn, a wing mirror on the LH-side of your handlebar (UK RH-side), a lighting system with integrated brake light, reflectors and with 2 sets of brakes independently actuating the front and rear wheel.**

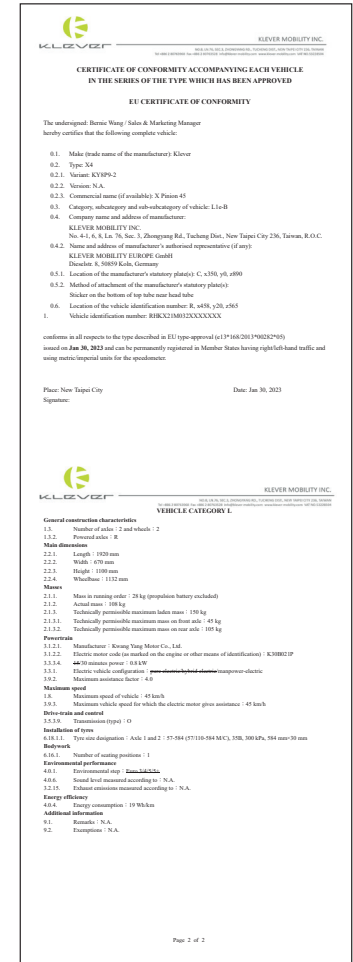


Image 10.1 (CoC only for reference)

## 11. Intended use of your Klever 45 km/h E-bike

Your Klever E-bike is a Type-approved 45 km/h E-bike designed according to structural requirements for a particular purpose. Thus, the usage must be limited to these specific areas. Your 45 km/h speed E-bike is designed based on the construction and equipment for use on public roads, normal paved roads. The vehicle is equipped in accordance with the Road Traffic Regulations for Type-approved vehicles. And therefore, it is allowed to ride it on public roads. In order to keep your E-bike always running and roadworthy, regular reviews and inspections are required or necessary repairs should be made immediately. Klever Mobility is not liable in case your 45 km/h E-bike is being used against its originally intended purpose nor for damages resulting from a breach of important instructions in this manual. This is particularly true in case of damage caused by overloading or off-road riding or by the improper repair of defects. The same applies to non-compliance with the maintenance, operation and maintenance requirements described in this manual.

## 12. Product liability & warranty

According to European warranty laws you are entitled to a period of 2 years for product liability, duty of care and warranty from the side of the manufacturer. This applies from the date of purchase or delivery of your E-bike. The proof is your proof of purchase, which should be stored carefully. You should register your bike on our website: [www.klever-mobility.com](http://www.klever-mobility.com). This product liability for material defects applies to all components of the entire E-bike.

### Warranty claims are granted:

- In case the defect was present prior to the purchase of the vehicle.
- In case of a material, manufacturing or information defect.
- In case of function-related wear which was not caused by regular tear and wear (see chapter 7. Wear).

### Warranty claims are rendered void:

- In case of damages caused by accidents or force majeure.
- In case of damages caused by misuse or improper use.
- In case claims relate to parts which are subject to functional wear (see chapter 7. Wear), except material or product defects.
- In case of damages caused by faulty and inadequate care and maintenance.
- In case of damages caused by faulty and inadequate repairs.
- In case of damages caused by components which were out of specification and assembled after purchase of the bike.
- In case of consequential damage caused by not immediately resolved, earlier identified defects.

In addition, we offer a **comprehensive warranty** that goes beyond the liability for material defects:

- **Two-year warranty** on all bike components.
- **Three-year warranty** on all components of the electrical system: motor, control unit, display and wiring harness.
- **Two-year warranty** on the battery (also refer to the points below).
- **Five-year warranty** against frame breakage.

This warranty applies only to the first owner of this E-bike on presentation of proof of purchase (sales receipt or bill showing

the purchase date). This warranty covers exclusively material and workmanship errors. In case of justified complaints, the article will be replaced or repaired. Further claims such as: replacement of property damage, downtime, cost of borrowing and renting, travel and transportation costs or loss of profits, are excluded. This warranty does not cover damages caused by misuse, by wear and tear, by accidental damage, vandalism and by improper assembly or repair.

1. Warranty repairs will be made exclusively by Klever Mobility or an authorised Klever dealer.
2. Costs from a previously executed repair of an unauthorised dealer, will not be reimbursed.
3. Parts replacement or repairs during the warranty period will not result in an extension or a new beginning of the warranty.
4. Each battery is subject to a natural aging process. Klever Mobility guarantees that after two years, or alternatively, after 700 full charging cycles a capacity of about 60% of the original battery capacity remains.
5. The two-year warranty begins on the date of purchase.
6. A warranty claim must be notified immediately.



**Please note! In case you register your Klever battery on our website ([www.klever-mobility.com](http://www.klever-mobility.com)), Klever extends the warranty term for the battery pack from 2 to 3 years. Within this term we guarantee that your battery still has 50% of its original capacity after 500 charging cycles.**

## 13. Disposal & transportation

### Disposal

All electronic components, such as motor, display, battery and charger are to be returned to an environmentally friendly recycling. These parts should not be considered household waste or abandoned into the environment.



**According to the European Directive 2002/96/EC, defective or no longer usable electrical equipment must be collected separately and returned to an environmentally friendly recycling. The same goes for batteries according to the European Directive 2006/66/EC. Please return broken or defective batteries to an authorised Klever retailer.**

### Transportation

Only the battery is considered to be hazardous and subject to the IATA Dangerous Goods Regulation requirements during transport or shipping by third parties (agents, air transportation or mail). Refer to section 5.5.4. Transport of the battery. The transport of all other parts of your E-bike is not particularly limited.

## 14. Technical data Klever X Pinion 45

|   |
|---|
| <b>Colour LCD Display</b>   |
| Illuminated colour LCD-display, with starter & motor immobiliser and acoustic alarm           |
| 5 levels of electric motor support: N – ECO – TOUR – MAX - TURBO                              |
| Bicycle computer: current speed, range, trip, km-day, time, Kcal, odo, cadence                |
| TURBO button for: walk-assist/ acceleration at standstill without pedalling / while pedalling |
| Battery state of charge SOC with 5 bars (each bar representing 20% battery capacity)          |
| Ambient light sensor  |
| Actuation of buttons confirmed with acoustic beep   |

|   |
|---|
| <b>Rechargeable 1,200 Wh battery</b>  |
| Lithium-Ion   |
| 44.4 V/ 27.0 Ah/ 1,200 Watthour/ 6.5 kg.  |
| State of charge indicated by LED: < 35% red / 35 – 75% yellow / > 75% green                         |
| Allowable discharge temperature: -20°C – +50°C  |
| Allowable storage temperature (12 months): -20°C – +25°C; (optimal +5°C – +20°C)                    |
| Allowable charging temperature: -5°C – +45°C (optimal +5°C – +20°C)                                 |
| Lockable and detachable   |
| Charging time: 1,200 Wh with 6A charger 5 hours   |
| Place of charging: on or off X Pinion 45  |
| Charging cycles: 700 (one complete charging is cycle is 0 – 100% capacity)                          |
| Range: 1,200 Wh 70 – 180 km, under average conditions 130 km  |
| Lifetime: after 2 years of 700 complete cycles at least 60% of the original capacity still remains. |

|   |
|---|
| <b>800 Watt Motor</b>   |
| Brushless DC motor in the rear hub  |
| Control through torque sensor in the frame dropout and speed sensor in the bottom bracket |
| Output power – torque: 800 Watt – 49 Nm.  |
| Operating voltage: 44.4 V   |
| Electric motor support: until maximum 45 km/h.  |
| Weight: 6.6 kg. – 800 Watt  |

|  |
|--|
| <b>Standard 6A charger</b>             |
| Input voltage: 200 – 240 V; 47 – 63 Hz |
| Output voltage: 48 V                   |
| Maximum charge current: 6A             |
| Output power: 288 Watt                 |
| Size: 225 x 100 x 40 mm. – 6A          |
| Weight: 1,3 kg.                        |

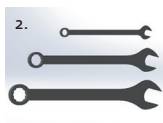
### Recommended tightening torque for bicycle components X Pinion 45

|                                   |                                  |                |  |         |
|-----------------------------------|----------------------------------|----------------|--|---------|
| <b>Head set</b>                   | Clamp bolt steerer tube          | 1 x M5         | Allen key 4 mm.                          | 5.5 Nm. |
|                                   | Locking clamp bolt               | 1 x M4         | Allen key 2 mm.                          | 3.0 Nm. |
| <b>Stem</b>                       | Clamp bolt handlebar             | 2 x M5         | Allen key 4 mm.                          | 5.5 Nm. |
|                                   | Clamp bolt steerer tube          | 2 x M6         | Allen key 6 mm.                          | 9.5 Nm. |
|                                   | Clamp bolt adjusting stem angle  | 1 x M8         | Allen key 6 mm.                          | 25 Nm   |
| <b>Brake lever</b>                | Clamp bolt handlebar             | 1 x M5         | Torx 20                                  | 5.5 Nm. |
|                                   | Reach brake lever                | 1 x M6         | Allen key 3mm.                           | -       |
| <b>Grip</b>                       | Clamp bolt handlebar             | 1 x M4         | Allen key 3 mm.                          | 3.0Nm.  |
| <b>Display</b>                    | Clamp bolt handlebar             | 1 x M5         | Allen key 3 mm.                          | 3.0 Nm. |
| <b>Actuator horn + indicators</b> | Clamp bolt handlebar             | 1 x M4         | Allen key 3 mm.                          | 3.0 Nm. |
| <b>Wing mirror</b>                | Clamp bolt handlebar             | 1 x M4         | Allen key 3 mm.                          | 3.0 Nm. |
| <b>Shifter</b>                    | Clamp bolt handlebar             | 1 x M5         | Allen key 4 mm.                          | 5.5 Nm. |
| <b>Headlight</b>                  | Mounting bolt                    | 1 x M5         | Allen key 4 mm. + 8 mm. open wrench      | 5.5 Nm. |
| <b>Front indicator</b>            | Adjustment bolt                  | 2 x M3         | Allen key 1,5 mm.                        | -       |
| <b>Seat post</b>                  | Mounting bolt saddle             | 1 x M6         | Allen key 6mm.                           | 9.5 Nm. |
| <b>Seat post clamp</b>            | Clamp bolt seat post             | 1 x M6         | Allen key 6 mm.                          | 9.5 Nm. |
| <b>Seat stay split for belt</b>   | Mounting bolts                   | 4 x M6         | Allen key 4 mm.                          | 9.5 Nm. |
| <b>Front wheel</b>                | Thru-axle                        | 1 x M15        | 1 x Allen key 6 mm.                      | 13 Nm.  |
| <b>Brake calliper</b>             | Mounting bolt                    | 2 x M6         | Allen key 5 mm.                          | 9.5 Nm. |
| <b>Disc rotor</b>                 | Mounting bolt                    | 6 x M5         | Torx 25                                  | 5.5 Nm. |
| <b>Fender stay</b>                | Clamp bolt fork leg              | 2 x M4         | Allen key 2.5 mm.                        | 3.0 Nm. |
|                                   | Mounting bolt                    | 1 x M5         | Phillips screwdriver + 8 mm. open wrench | 5.5 Nm. |
| <b>Front fender</b>               | Mounting bolt booster front fork | 2 x M5         | Torx 25 + 8 mm. open wrench              | 5.5 Nm. |
| <b>Rear fender</b>                | Mounting bolt chain stay         | 1 x M5         | Allen key 4 mm.                          | 5.5 Nm. |
|                                   | Mounting bolt luggage rack       | 1 x M5         | Allen key 4 mm.                          | 5.5 Nm. |
| <b>Ring lock</b>                  | Mounting bolt                    | 4 x M5         | Allen key 3 mm.                          | 5.5 Nm. |
| <b>Luggage rack</b>               | Mounting bolt                    | 4 x M5         | Allen key 4 mm.                          | 5.5 Nm. |
| <b>Rear wheel</b>                 | Hex nut                          | 12 mm. axle    | 19 mm. box key & open wrench             | 40 Nm.  |
|                                   | Non-turn washer LH-side          | 1 x M5         | Allen key 3 mm.                          | 5.5 Nm. |
| <b>Kickstand</b>                  | Mounting bolt                    | 2 x M6         | Allen key 4 mm.                          | 9.5 Nm. |
| <b>RH pedal</b>                   | RH threading                     | 9/16" x 20 TPI | 15 mm. open wrench                       | 40 Nm.  |
| <b>LH pedal</b>                   | LH threading                     | 9/16" x 20 TPI | 15 mm. open wrench                       | 40 Nm.  |
| <b>Crank set</b>                  | Mounting bolt                    | 1 x M15        | Allen key 8 mm.                          | 40 Nm.  |
|                                   | Mounting bolt cover              |                | Allen key 10 mm.                         | 5.5 Nm. |
| <b>Motor cable</b>                | Mounting bolt                    | 1 x M5         | Torx 25                                  | 5.5 Nm. |

### Recommended tightening torque for standardised metrical hexagon headed bolts (quality grade 8.8)

| Bolt       | M3  | M4  | M5  | M6   | M8 | M10 |
|------------|-----|-----|-----|------|----|-----|
| Nm. torque | 1.3 | 3.0 | 6.0 | 10.0 | 25 | 50  |

These torque indications always refer to the upper limit of the bolt's resilience. Use a proper torque wrench when tightening or adjusting a bolt. This will prevent the overcharging and failure of the bolt. Always adjust the torque key to a little more than 75% of the value stated by the manufacturer and tighten the bolt. Check the firm fit. In case the clamping connection is not strong enough, increase the value gradually in little steps. If necessary, adjust the maximum value (never exceed it) and loosen the bolt by half a revolution before finally tightening it.



#### Tools (image 14.1)

1. Allen keys
2. Combination wrenches
3. Sockets and bits
4. Torque wrench
5. Torx key
6. Tyre lever



Image 14.1

### The gross maximum vehicle weight of the X Pinion 45 should not be more than

150 kg = cyclist + vehicle + Luggage

### The payload of the X Pinion 45 = 120 kg.

#### Tyres

Size: 57 – 584 mm. (27.5" x 2.35")

Recommended tyre pressure: 2.0 – 3.0 bar (30 – 45 Psi)

Wheel circumference approximately 2,195 mm., the exact circumference depends on the tyre pressure and the gross weight of cyclist + vehicle.

## 15. Klever E-bike Passport

Fill out all data immediately after purchase of your E-bike in order to present the pass in the case of warranty claims, together with proof of purchase. In case your vehicle ever gets stolen, these data will facilitate the work of the police as well.

**Name**

---

**Street**

---

**Postal code / residence**

---

**Phone**

---

**E-mail**

---

**Klever model**

---

**Frame size**

---

**Frame colour**

---

**Frame serial number**

---

**Key serial number**

---

**Battery serial number**

---

**Charger serial number**

---

**Date of purchase**

---

**Signature**

---

## 16. Klever inspection plan

### 1. Inspection & maintenance

**Date:**

After 500 – 1,000 km or no later than 1 year after purchase.

**Date**

**Stamp / signature**

**Repairs**

---

**Components replaced**

---

### 2. Inspection & maintenance

**Date:**

After 3,000 – 4,000 km or no later than 2 years after purchase.

**Date**

**Stamp / signature**

**Repairs**

---

**Components replaced**

---

### 3. Inspection & maintenance

**Date:**

After 5,000 – 7,000 km or no later than 3 years after purchase.

**Date**

**Stamp / signature**

**Repairs**

---

**Components replaced**

---

### 4. Inspection & maintenance

**Date:**

After 7,000 – 9,000 km or no later than 4 years after purchase.

**Date**

**Stamp / signature**

**Repairs**

---

**Components replaced**

---





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