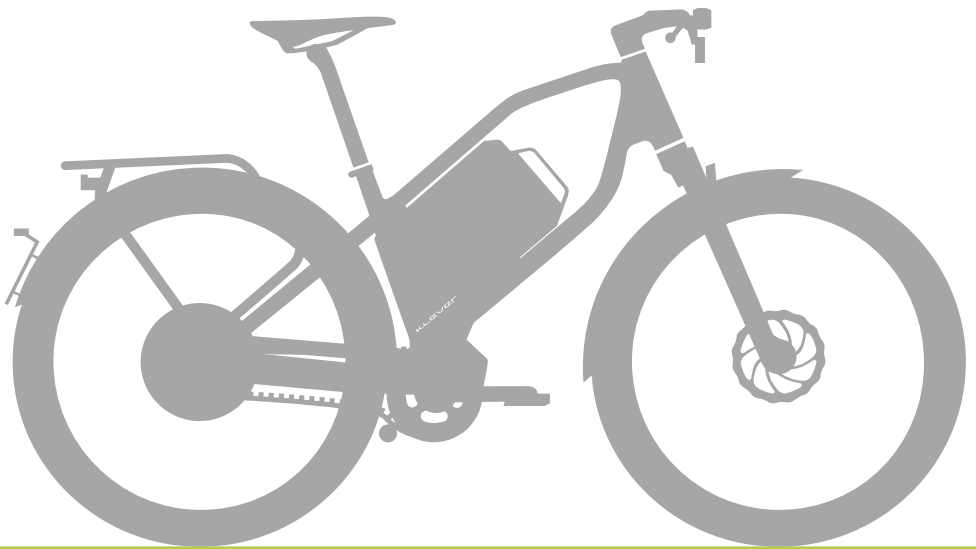


Models

X Alpha 45

X Speed Pinion

X Pinion 45



December 2021

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1. QuickStart

Dear customer,

On the first pages of this comprehensive instruction manual, you will find an overview of the main features of the X Speed models (X Alpha 45 & X Speed Pinion & X Pinion 45). For further information please read the additional instructions on the following pages. There you will find all technical details and further relevant information. Should you have any further questions, please ask one of our authorised Klever dealers or contact our technical hotline, whose contact details are at the end of the manual.

Enjoy your X Speed model, we wish you a lot of fun,
The Klever Mobility team.



Image 1



Image 2



Image 3

Safety check

Before starting your X Speed please always check the operation of the brakes and the tyre pressure.

Launch of the electric drive

You can start the system with or without inserting the dedicated X Speed E-KEY (image 2). Check for the details concerning the function of the E-KEY section 6.4.

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 3), after a 3 seconds system check your X Speed is ready to be pedalled.
- 2. Just start pedalling and the electric system will wake up automatically** After a 3 seconds system check, the electric drive will start to support.

N		No support, electric system active
ECO		Low support
TOUR		Medium support
MAX		Strongest support

The ⚡ (TURBO) button on the display has **3 functions**:

1. Walk-assist: 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.
2. TURBO-mode WITHOUT pedalling of the cyclist. The maximum speed is 4 km/h.	≤ 4 km/h	Additional support at standstill or in case you do not want to pedal
3. TURBO-mode WITH pedalling of the cyclist. While actuating the ⚡ (TURBO) button in ECO- or TOUR-mode electric support will be increased to MAX-mode.	≤ 45 km/h	Additional support while riding hills or strong headwinds.

Charging the rechargeable battery

! **Caution! The battery should only be charged with the appropriate, supplied 5A or 6A charger (image 4).**

The battery can be charged on (image 6A) and off bike (image 6B). For removal of the battery see section 6.5.3. Connect the charger with the power plug to the wall socket. The 6A charger (image 4) comes with the X Alpha 45 and X Pinion 45. And the 5A charger (image 6B) comes with the X Speed Pinion model. 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 4 + 5 + 6A/6B). The charging process starts automatically. Once the LED on the charger constantly lights green the operation is complete and the battery is charged. Unplug the power plug from the wall first, then remove the charger lead from the battery charger.

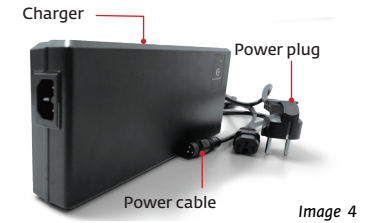


Image 4



Image 5



Image 6A



Image 6B

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 rechargeable battery of 850 Wh (from 0% to 96%) will take about 4 hours with the standard 5A charger.

The charging of an empty rechargeable battery of 1,200 Wh (from 0% to 96%) will take about 5 hours with the standard 6A charger

2. Introduction

Congratulations

With the purchase of this Klever Mobility X Speed speed pedelec you have made the right purchase decision. You are the owner of a high-quality product which will offer a lot of pleasure in everyday life. Technically and functionally up to date, it is carefully manufactured using quality materials and components. An excellent design and excellent value for money distinguishes this X Speed model.

For a trouble free, pleasurable riding experience with your new speed pedelec, please read this manual carefully. Everything you need to know in terms of technical specifications, operation, maintenance and care, has been carefully compiled in this manual. Please also note the additional information in the separate instruction manuals supplied with some of the components.



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



Bold sections marked with the "Please note!" symbol contain information about the X Speed, its accessories and its handling.



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

Furthermore, in case you need any additional information or advice, please contact **Klever Mobility NL bv**
technical hotline on: +31 (0)302102905
 Monday - Friday from 8h00 -17h00 CET

Or contact an 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.

Your X Speed model has been equipped according to very strict EC Type-approval Regulation 168/2013 and it 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 speed pedelec 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 head light and the tail light with integrated brake light, reflectors and with 2 sets of brakes independently actuating the front and rear wheel.

The additional electric drive is limited to max. 45 km/h, and thus complies with the statutory requirements for an L1e-B vehicle. Due to the fact that the X Speed is a type-approval vehicle in the L1e-B category 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 speed pedelec helmet as well.

3. Type-approval and EC Certificate of Conformity (CoC)

The Manufacturer:

Klever Mobility Inc.
 No. 8, Ln.76, Sec.3, Zhongyang Rd.,
 Tucheng Dist.; New Taipei City 236 Taiwan
 Represented in the Benelux by:

Klever Mobility NL bv
 Regulierenring 15
 3981 LA Bunnik
 Tel.: +31 30 210 2905
 infoNL@klever-mobility.com
 www.klever-mobility.nl

Hereby confirms for following products:

- X Alpha 45, **Model year 2021**
- X Speed Pinion, **Model year 2021**
- X Pinion 45, **Model year 2022**

Conformity with the applicable European Regulation EC 168/2013. Your X Speed comes with a Certificate of Conformity (CoC) with which your vehicle can be registered. Klever will register your X Speed 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 Speed to your name and insure yourself as well.

Please note! With a maximum speed of 45 km/h. this X Speed model is NOT a regular electric bicycle, but it is a so-called speed pedelec. 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 speed pedelec helmet as well

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

4. Getting started and safety check of your X Speed model

Although your X Speed has been subjected to a final check on the assembly line and afterwards has been checked at your local Klever dealer, the transport and the use over time may have caused changes. Therefore, prior to your first ride, and occasionally thereafter, you should consider some important things and check the vehicle.

- Make yourself familiar with this speed pedelec and the functioning of its electric motor support, before the first ride in public traffic.
- 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. A defective E-bike can cause serious accidents and endanger your life. In doubt, please contact your dealer or our technical hotline.

! Caution! Your X Speed encounters wear and tear in everyday riding through extreme weather and road conditions. Through dynamic loads different parts experience different fatigue and wear. Therefore, it is recommended to inspect your X Speed on a regular basis and look for wear of parts and changes in scratches or cracks, or discolouring of parts. These could possibly indicate damage of the part. Needless to say, that damaged parts must be repaired or replaced.

i Please note! Following the inspection plan in section 19, you best bring your speed pedelec to your Klever dealer for inspection, service, maintenance and repair.

i Please note! This is a Type-approval vehicle, it is not allowed to replace components and parts with generic parts. Make sure to only use original Klever Type approved spare parts for replacement. The same applies to upgrades (e.g., winter tyres or suspension seatpost). Only select components from the Klever Type-approval list. In case you are not sure whether to use Type approved spare parts, please always contact your official Klever dealer or otherwise call our technical hotline.

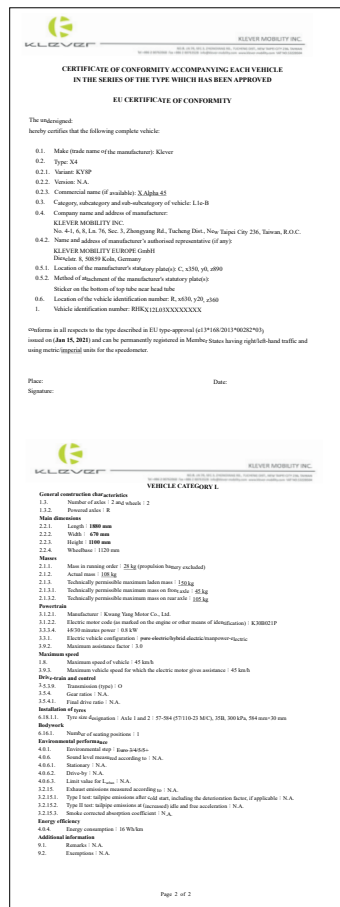


Image 7

☺☺☺ The annexes of the Certificate of Conformity (CoC) of the X Alpha 45, X Speed Pinion and X Pinion 45 you will find on pages 66 and 67 of this manual.

5. Behaviour in road traffic

With the help of the auxiliary electric propulsion, 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 speed pedelec 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 speed pedelec 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 on bike lanes, but only if allowed.
- Always keep your X Speed in a perfect condition.
- Use your speed pedelec only in accordance with its intended purpose (see section 13. Intended use).
- Do not use a mobile phone nor a headset while riding.
- Be sure to observe the maximum weight of cyclist + X Speed + luggage of 150 kg (see section 11. Technical Data).
- Have your X Speed checked according to the recommended service intervals by authorised Klever dealers.

6. Klever's proprietary electric propulsion – the BIACTRON system

You have purchased a speed pedelec 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 9):

1. Rechargeable battery
2. Motor
3. Control unit / Display
4. Motor controller
5. Torque sensor
6. Pedal Sensor
7. Charger (image 8)

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



Image 8



Image 9

Because of its maximum speed of 45 km/h your X Speed model has to comply with the statutory requirements for an L1e-B vehicle. Due to the fact that the X Speed is a Type-approval vehicle in the L1e-B category 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 speed pedelec helmet as well.

The five (different) levels of motor 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. 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 6.3. Recuperation of battery capacity.

6.1. Sensors and their function

The X Speed is equipped with a torque sensor in the frame's rear dropout. This sensor accurately measures the force you exert during pedalling. In conjunction with the pedal sensor, this torque sensor precisely monitors the cycling effort of the cyclist. The motor controller then calculates these values and manages precisely the amount of electric support from the motor. Hence generating a perfect synergy between cyclist and X Speed.

You can also define the amount of motor support by yourself choosing between the 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 speed pedelec 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, from a standstill to get started either you have to pedal or you have to actuate the ⚡(TURBO) button on the display. From standstill without pedalling the motor will take you to a maximum speed of 4 km/h. Convenient when starting uphill. The ⚡(TURBO) button can also be used in case the speed pedelec has to be pushed while walking alongside the X Speed.

6.2 Levels of electric motor support

Our BIACTRON-system offers five levels of electric motor support:

- N
- ECO
- TOUR
- MAX
- TURBO

Depending on topography, weather conditions and your personal preferences, you can choose the motor 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) (MAX) while pedalling ≤ 45 km/u.	Strongest support	Steep ramps / violent gusts
⚡(TURBO) (MAX) without pedalling ≤ 4 km/u.	Strongest support	Starting from standstill
⚡TURBO) walking with X Speed ≤ 4 km/u.	Walk-assist, low support	Walking with X Speed or pushing uphill

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

- 1. You walk alongside the X Speed 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 X Speed and intend to start from standstill on a ramp without pedalling. Push the ⚡(TURBO) button and you will get the strongest support up to 4 km/h.**
- 3. You are sitting on your X Speed. 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).**

Please note! These 3 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 3).

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.

6.3 Recuperation of battery capacity: regeneration

The Klever BIACTRON system of your speed pedelec has an innovative, 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. As a consequence, the motor friction is being converted into electricity that is being stored into the battery. The freewheel mode will be activated once you do not pedal and roll out to a traffic light or you coast down a hill or mountain without having to pedal. Also, when actuating the brake levers with the built-in brake sensor, the regeneration function will be activated while the disc brakes start to brake the wheels.

Section 6.4.3 (menu for settings) explains how this function can be activated and adjusted to your personal preferences. The regeneration function is a nice and clean addition to the capacity, 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 where you ride and the chosen regeneration settings.

6.4 Display

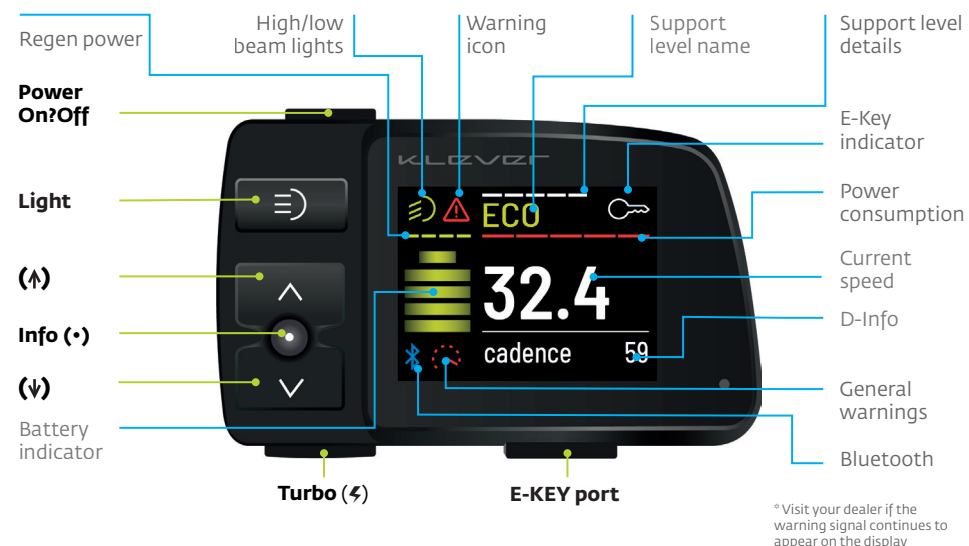


Image 10

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

Now you can start the system WITH or WITHOUT inserting the E-KEY (see section 6.4.3).

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 11), 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 10), after a 3 seconds system check your speed pedelec is ready to be pedalled.
- 2. Just start pedalling, the electric system will wake up automatically.** After a 3 seconds system check, the electric drive will start to support.



Image 11

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	Starting and walking aid (without pedalling) Strongest support (without pedalling) Strongest support (while pedalling)
Light	Upper left	On/Off light



Image 12



Image 13



Image 14

6.4.1 Function of each button

On/Off button (image 12)

Press the POWER button and you'll boot the system. The system performs a system check of 3 seconds, 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.

Up arrow (↑) button (image 13)

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.

Down arrow (↓) button (image 14)

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 15)

Press the INFO (•) button and you enter into a loop subsequently offering all rider's information on the LCD-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 15

Press "INFO button" to change the D-INFO



Image 16

Time (hh:mm) (image 17)

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 17



Image 18

Trip (image 18)

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 6.4.3 with the submenus of the display settings).



Image 19

Km-day (image 19)

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



Image 20

odo (image 20)

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



Image 21

SOC = State of Charge (image 21)

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



Image 22

Kcal (image 22)

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. 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 6.4.3 with the submenus of the display settings).

Cadence (image 23)

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 23

⚡ (TURBO) button (image 24)

This button has three functions for three different scenarios of ⚡ (TURBO) usage.

1. As a walk-assist while walking alongside your X Speed.
2. As a ⚡ (TURBO) power assist without pedalling..
3. As a ⚡ (TURBO) power assist while pedalling.

Section 6.2 deals in detail with these three different ⚡ (TURBO) power scenarios.



Image 24



Please note! We recommend that you familiarise yourself with the 3 different scenarios of ⚡ (TURBO) power support prior to riding your X Speed on public roads. Try to practice these scenarios on a parking lot or in a traffic-calmed street. Once you feel comfortable using the three ⚡ (TURBO) modes, you can start riding your speed pedelec on public roads.

6.4.2 Display content**Battery status (image 25)**

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 colour. Now 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 25

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 front side of the battery too (see section 6.5.1 Charging of the chargeable 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. Meaning that you will not have electric motor support any more, but the system (display & lighting) will remain functioning.



Image 26



Image 27

Level of motor support (image 26)

The bars in the upper part of the screen show the selected level of motor support. See section 6.2 for the various levels of electric motor support and their recommended riding situations. Section 6.4.3 Submenu ASSIST/REGEN helps to set the support levels according to your personal riding preferences.

Speedometer (image 27)

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

Regeneration (image 28)

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 6.4.3 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.



Image 28

Battery consumption (image 29)

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.

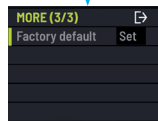
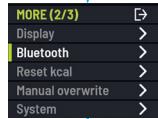
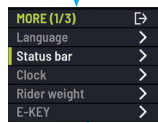


Image 29

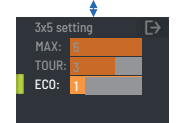
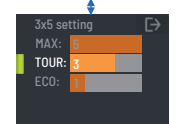
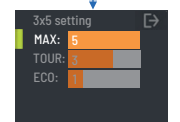
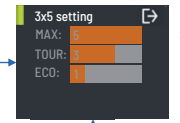
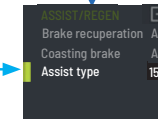
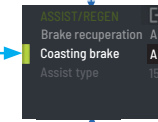
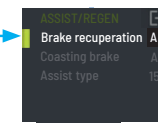
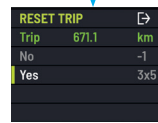
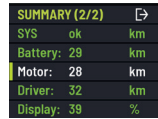
Press **INFO (•) button for 3 seconds** to enter the Settings menu.



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



Afbeelding 30



1-5
1-5
1-5

6.4.3 The menu and submenus for settings

Submenu > ASSIST/ REGEN

Setting > ASSIST

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

3x5

There are 3 basic levels of ascending motor 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 30 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 motor 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 6.3 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.



Please note: Braking regeneration is only available on the 45 km/h Type-approval models. It is not available for 25 km/h EPAC-models.

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 6.4.1. 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. You can set the weight of 2 cyclists using the same X Speed vehicle frequently.

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 set off and the motor will be locked. Once you have inserted the E-KEY and the system is being activated, you can remove it 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, the system does not ask to insert the E-KEY, yet you do insert the E-KEY, then you turn back in 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 set 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

Setting for 25 km/h EPAC-models: Head and tail light will be turned on automatically when the system will be turned on. You can decide to turn off the head and tail light while the system remains on.

Setting for 45 km/h speed pedelec models: the turn ON/OFF-option is not available for speed pedelecs. 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.

6.5 Rechargeable battery

Your X Speed model has a high-quality lithium-ion battery with a big capacity. The X Alpha 45 and the X Pinion 45 models have a battery capacity of even 1200 Watthours. For technical details, please refer to section 11. 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 31). 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, very practical, easy and simple to handle. Nevertheless, you should consider some important things in order to maximise the life and performance of the battery.

- Since the lithium-ion battery has no memory effect, you can charge it at any time. Even if it is not completely discharged. In practice, it has been shown that it is even better to charge it again after short distances.
- Your battery has a lifetime of 700 charging cycles. One charging cycle means a full charge of the battery (0 – 100% capacity). Partial charges can be done more often.
- When the battery is not being used for a long time (more than 2 months), it should be recharged as a low amount of self-discharge is common.
- Store the battery, if possible, in a dry, cool and dark place. The ideal storage temperature is between 5 – 20 °C. Avoid exposing the battery to direct sunlight over a long time. Temperatures over a longer period of more than 45 °C or below -10 °C can cause permanent damage.
- 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.
- A battery which is exposed a long time to frost, should be gently heated in the ambient temperature of a heated room, before starting.
- In case you need to park your X Speed model outside for a long time during the cold season, remove the battery and store it in a heated room. Since the battery is very easy to remove, this will be no problem.

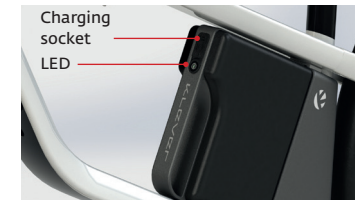


Image 31

- Also, the battery should be charged at moderate temperatures (15-25 °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 also cause overheating and the battery could catch fire.
- Do not use any other type of charging unit 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.
- The battery is maintenance-free. Should it be broken or become defective contrary to expectations, seal the contacts with tape and take it to your dealer or contact our technical hotline.
- 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!

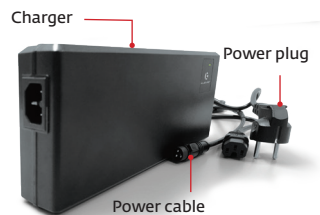


Image 32

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

! **Caution! Charge the battery exclusively with the proprietary 6A charger (image 32) or the 5A charger (image 34) which come with the X Speed models.**

⊗ **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.**

i **Please note! Resuming:**

- **Charge the battery only with the proprietary charger.**
- **The battery can be recharged any time, even after short trips.**
- **Avoid prolonged temperatures below -10 °C and above 45 °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.**

6.5.1 Charging the battery

You can charge the battery on (image 33) or off bike. For instance, indoors during the winter time (image 34). Charging at any time, even after a partial discharge (e.g., after a short distance of 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 6.5.3. For the technical details of the charger please read section 11 Technical data. To charge the battery, do following:

- You can monitor the charging process on the basis of the indicator LEDs on the charger and battery.
- Connect the power cable to the charger.
- Insert the power plug of the charger into the wall socket, the LED will start to flash red.
- 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.
- The LED on the charger switches to flashing yellow light, charging begins.
- The LED indicator turns to yellow continuous light. The battery is charged to about 35%. The charging is in progress.
- The LED changes to flashing green, the battery is to about 75 – 90% charged.
- The LED is on solid green, the battery is now fully charged and the charging process is complete.
- Disconnect the power plug from the wall socket.
- Unplug the socket of the charger from the battery socket.



Image 33



Image 34

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 rechargeable battery of 850 Wh (from 0% to 96%) will take about 4 hours with the standard 5A charger.

The charging of an empty rechargeable battery of 1200 Wh (from 0% to 96%) will take about 5 hours with the standard 6A charger.

Please note! 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.

Battery and charger become warm during the charging process. Ensure adequate ventilation of the battery and charger. The vent holes should not be covered. 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, please contact an authorised Klever dealer. Never open the charger.

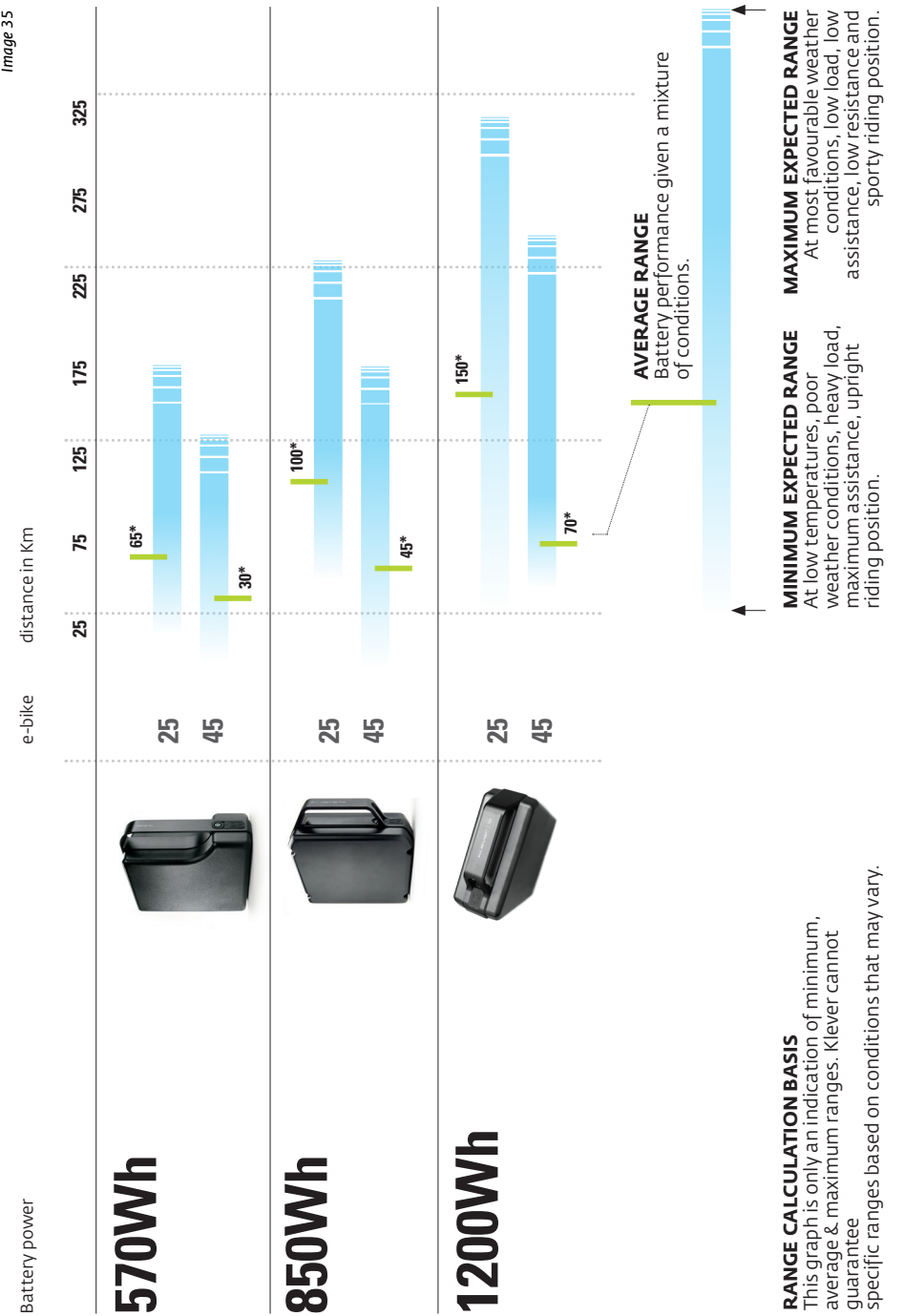
6.5.2 Battery range

The range specification of the system as indicated in image 35 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 bike (oiled chain, proper tyre pressure, etc.).
- The total weight of the system (speed pedelec + 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.

Image 35



6.5.3 Removal and mounting of the battery pack



Image 36

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 36). Now you can charge the battery separately or store it safely for a longer break.



Image 37

Having removed the battery pack from your speed pedelec, 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 37).



Image 38

Mounting the battery in the docking station

Insert the battery carefully. Make sure the groove of the battery casing is carefully inserted into the guide rail of the bicycle frame. Then slide the battery pack gently down until you hear the lock engage and the electronic contacts are connected (image 38). For this operation you do not need the key of the lock. The lock will automatically snap in place and the battery is now locked. The system is ready for operation and the battery protected from being stolen.

i **Caution! Do NOT ride your X Speed model 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 bike without the battery could possibly damage the Klever BIACTRON system.**

6.5.4 Transport of the battery

This battery is subjected to the Dangerous Goods Legislation. The owner of the X Speed can transport the battery 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. For the preparation of the battery being transported, consulting an expert for hazardous material is absolutely required.

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.

i **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.**

6.6 Elementary diagnostics and troubleshooting of the electric system

The system will not turn on

Check all connections. Check whether the battery is sitting correctly in the docking station in the frame and whether the battery lock is engaged.

The system can be turned on, but does not give any electric motor support

Check all connections from and to the rear wheel motor.

i **Please note! In case it is not possible to solve the above problems, please contact your local Klever dealer or our technical hotline.**

7. Bicycle parts of the X Speed 45 models

Your X Speed model is a high-quality speed pedelec. Here you will find the explanation of function, maintenance, service and operation of the conventional bicycle components which are not part of the electric drive system. You will also find further information in the accompanying user manuals of the component suppliers.



Image 39



Image 40



Image 41



Image 42

7.1 The speed pedelec, a Type-approval vehicle with dedicated equipment

As explained in section 3 Type-approval, the X Speed is not a regular electric bicycle, it is a speed pedelec. 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 Speed comes with special equipment (a well audible horn, a brake light and a wing mirror) which is in relation to the higher speed of this vehicle (up to 45 km/h) and the Type-approval requirements.

7.1.1 Horn

The horn is mounted underneath the handlebar (image 39) and can be actuated with a pushbutton at the left-hand side of the handlebar, underneath the LCD display (image 40). With this horn you can notify the other road users of your presence on the road, especially under unclear and crowded traffic conditions.

7.1.2 Direction indicators (only on X Alpha 45)

Unlike the horn, brake light and wing mirror which are mandatory according to Type-approval regulations, the direction indicators are not mandatory. Nevertheless, direction indicators offer additional comfort and safety to the speed pedelec rider and to other road users as well. The X Alpha 45 model has two sets of direction indicators; one set at the front of the speed pedelec (image 41) and one set at the rear of the speed pedelec fully integrated with the tail light and the license plate (image 42).

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 40).

7.1.3 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 43). In this way the traffic coming from behind will be notified that you are braking and your speed is decreasing.



Image 43

7.1.4 Wing mirror

Your X Speed model is being equipped with a wing mirror on the LH side (UK RH side) of the handlebar (image 44). 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 and you can keep your attention on the traffic in front of you and on the traffic behind you at the same time.



Image 44

7.2 Saddle and handlebar adjustment

X Speed models come in two frame sizes (M = Medium and L = Large). Fitting the frame & speed pedelec to your body can be done with the 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 section 11 Technical Data.

Adjustment of the saddle height

You find the optimal saddle height if you touch the pedal with the heel of your stretched leg, when sitting on the saddle. Or when you bring the ball of your foot to the centre of the pedal, your knee should be slightly bent (image 45). Loosen the seat clamp bolt with a 6 mm. Allen key (image 46) 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.



Image 45



Image 46

The distance between saddle and handlebar (by pushing the saddle forward or backward) and the saddle angle are adjusted with the 2 saddle clamping bolts of the seat post and a 5 mm. Allen key (image 46). Generally, the saddle should be positioned horizontally.

! **Please note! Pay attention to the recommended torque when tightening the various bolts (see section 11 Technical Data).**

! **Caution! The seat post may never be installed over the minimum insertion mark. Otherwise, the post could possibly break during riding, which could lead to injuries (image 47).**



Image 47

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:

Model X Speed Pinion

This X Speed model has a fixed stem. Loosen the 4 M5 bolts of the front cap of the stem a couple of turns with a 5 mm. Allen key (image 48) and adjust the angle of the handlebar (image 49). Tighten the 4 bolts of the front cap with the correct torque.



Image 48

Model X Alpha 45 & X Pinion 45

These X Speed models have an adjustable stem. Loosen the big pivotal M8 bolt of the stem with a 6 mm. Allen key and adjust the angle of the stem (image 50). 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 51).

Please note that the adjustment of the angle of the handlebar, both on the X Speed Pinion as well as on the X Alpha 45 may have also altered the position of the brake levers, the display and the shifter. If necessary, you can adjust the position of these components too. 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



Image 49

unnatural position (image 52). 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 suitable and convenient position according to your liking and needs.

! **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 50

7.3 Air sprung suspension fork

This X Speed model has an air sprung suspension front fork. This improves the riding comfort, the traction and control on the road and it makes the handling of your speed pedelec easier. The front fork is pre-set with factory settings. In addition, it offers various options which can be set to your personal preferences. Also, it is recommended to set your suspension according to the combined weight of rider and vehicle. This can be done with the help of your Klever dealer.



Image 51

Setting sag (precompression)

Sag is the amount of travel the suspension compresses when you sit on your speed pedelec. The compression depends on the combination of your weight 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 to make initial settings of the air pressure.

The total amount of travel of your suspension fork is 80 mm. Consequently, with a sag of 20% the fork should compress around 16 mm. when you sit on the bike. You can try this while sitting on the bike with your hands on the handle bar and leaning against the wall. Depending on the centre of gravity, additional accessories (extra weight) and the amount of air pressure in lefthand fork leg, the fork will compress more or less. The fork leg has an o-ring which can be used to measure the sag. While adjusting the air pressure, you can:

- Make the suspension more smooth = lower air pressure = more sag (e.g., 25% = 20 mm. compression).
- Or make the suspension more firm and more direct = higher air pressure = less sag (e.g., 15% = 12 mm. compression).
- It is advised not to have more than 30% sag = 25 mm. compression (image 53).



Image 52



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.

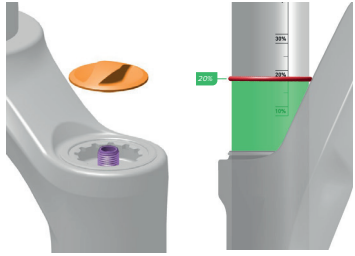


Image 53

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



Image 54

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 54). Going from the neutral position in the centre, the switch has two clicks to the right in order to make the rebound more slow and more sluggish (turtle icon on the sticker of the bottom of the fork leg). And from the neutral position the switch has two clicks to the left in order to make the rebound more fast and smoother (rabbit icon on the sticker). This setting does not need any tooling and it can be done any time by yourself.



Image 55

Lock-out

With the lock-out on top of the righthand fork leg you can lock the suspension (image 55). 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. The actuation of the Lock-out is a swift and easy operation which you can do any time by yourself.

Maintenance

For the long-term proper functioning of the front fork regular maintenance is required. Some basic tips for 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.



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.

7.4 Disc brakes

Your X Speed 45 is being equipped with hydraulic disc brakes (image 56) dedicated for the use in combination with speed pedelecs. The brake calliper on the front fork has 4 pistons because the front brake has to provide the biggest share of the brake power and the brake modulation. Given the higher speeds when riding a speed pedelec, the four-piston front brake is the best choice. These disc brakes have excellent braking performances even under rainy weather and other bad weather conditions. The disc brake has very low maintenance and does not wear the rim.

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 6.4.3 Submenu ASSIST/REGEN).



Image 56



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.

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 discs 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). That and the replacement of worn brake pads and disc 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 X Speed 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, 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.

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 suppliers.

7.5 Belt drive and 12-speed gearbox

7.5.1 Powerful advantages

These X Speed models come with a very user-friendly and low maintenance drive train. Instead of the traditional drive train with chain and derailleur gear the X Alpha 45 and X Speed Pinion are being equipped with a belt and a fully enclosed 12-speed gearbox. This unique combination of belt gear, gearbox and brushless BIACTRON rear wheel motor comes with 3 powerful advantages:

1. Contrary to traditional drive trains, the X Speed drive train combination is whisper-quiet, low maintenance and very clean. Never dirty pants again.
2. All Klever E-bikes and speed pedelecs have their motor in the rear wheel, 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. By contrast, in E-bikes and speed pedelecs with a centre motor, which is a motor around the bottom bracket, the joined forces and torque of both cyclist + motor go through all components of the drive train. Consequently, shifting gears goes less smoothly and the wear of drive train components such as chain, chainwheel, sprockets and derailleurs goes twice as rapidly.
3. Last but not least, with the rear wheel motor the drive train has no efficiency loss. Motor power and motor torque go instantly from the tyre to the road surface without any loss.

7.5.2 Belt

The belt drive (image 57 & 58) 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 not attract any dirt and debris from the street.

Section 7.7 Wheels & tyres, deals with the belt tension and how to disengage the snubber (belt tensioner) in order to remove the rear wheel.

Your local Klever dealer has the proper tools for the tensioning of the belt and the checking of the belt wear.

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. 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.

Please note! If you do need to touch the belt, for instance in order to remove the rear wheel, then first turn off the BIACTRON-system and take the battery pack out of its docking station.

Please note! The belt can only be disassembled or assembled under the condition that it is without tension and there is ample play in order to lift the belt without any force from the tooth shaped profile of the sprocket or the chain wheel.

Caution! Never try to lift the belt off the sprocket or the chainwheel using a screwdriver or another tool as a lever. This will damage the belt with the chance of making it unserviceable. Also putting back the belt on the sprocket or the chain wheel with a screw driver or another tool will lead to the same type of damage. Never do this!

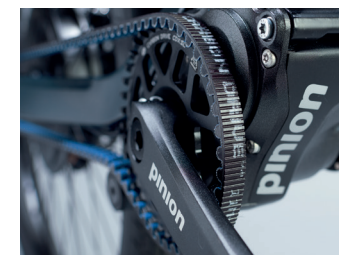


Image 57



Image 58



Image 59

7.5.3 12-Speed gearbox

The Pinion C1.12 gearbox (image 57 & 59) is fully enclosed and runs with very low maintenance in a whisper-quiet oil bath. The 12 speeds are offering a gear range of no less than 600%. This is more than any other derailleur gear can offer. With the X Speed gear ratios 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 45 km/h. on a flat road. All intermediate gears from 1 (smallest) to 12 (biggest) are very well balanced with ascending steps of 17%.

With the twist shifter in the righthand grip you shift the gears (image 58). 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 4th to the 5th gear;
- When shifting up from the 8th to the 9th gear.

In general shifts will go directly, smoothly and without falter. You can choose any of the 12 gears and the 12 digits on the gear display on the side of the twist shifter (indicating the gear you are in) should be aligned with the >> icon (image 60). In case the shifting does not go 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. Proceed as follows:

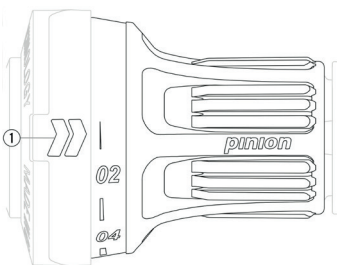


Image 60

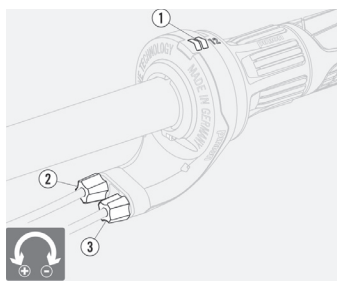


Image 61

- Check the cable terminals of the 2 shifting cables (image 61). There should be no play between the cable terminal and the 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.
- In case there is play on the shifting cable terminals, you should increase the cable tension. Turn both adjustment screws a quarter turn counter clockwise (image 61). 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 12th gear and check whether the digit 12 is properly aligned with >> icon on the gear display.
- You will notice that while turning adjustment screw 2 (image 61) a quarter turn clockwise + adjustment screw 3 a quarter turn counter clockwise, the twist shifter will rotate a bit into the direction of digit 11.
- 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 digit 01. In this way you will be able to reach the proper settings for smooth shifting.

! Please note! The smooth functioning of the two shifting cable is essential for the overall smooth functioning of the Pinion 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 Pinion 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 Pinion gear box can be found in the dedicated manuals of the various suppliers.

7.6 Lighting

Your X Speed 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 62) with high output and stand light function. The taillight is a bright LED too with stand light function, with integrated brake light and license plate illumination (image 63). 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 button, the headlight changes from high beam to low beam again (see section 6.4 Display).

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

! Caution: A non-functioning light is illegal and endangers your life on the road. Bicycles without lights are easily overlooked in the dark. You would risk serious accidents.

More information on the headlight and the taillight can be found in the manual from the lighting supplier.

7.7 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 removal and installation of the wheels due to a puncture or in case of transportation of your X Speed you take the steps as described below. Because of the belt drive we'll describe the wheel assembly more in detail than for a conventional derailleur drive.



Image 62



Image 63



Image 64

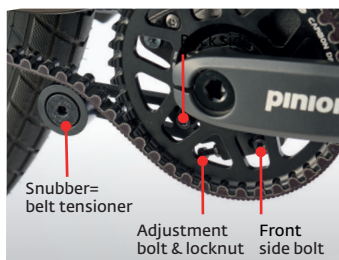


Image 65



Image 66

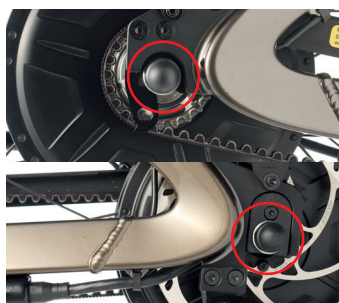


Image 67

Removal of the rear wheel

- Turn off the electric drive system of your X Speed. Remove the battery pack from its docking station.
- Loosen the bolt of the belt guard with a 4 mm. Allen key. Pivot the belt guard towards the seat stay. In this way the upper belt section will be free (image 64).
- Loosen the locknut of the adjustment bolt at the bottom of the snubber with a 7 mm. open wrench. Then turn the adjustment bolt counter clockwise with a 3 mm. Allen key partially out of its bracket (image 65).
- Loosen the bolt at the front side of the snubber bracket a couple of revolutions with a 4 mm. Allen key.
- Loosen the bolt at the back side of the snubber bracket a couple of revolutions with a 4 mm. Allen key.
- Now the belt is without tension. However, do NOT try to remove the belt from the chainwheel. Not with tools either. The tooth shaped profile prevents the belt from being lifted from the chainwheel.
- Loosen the clamping bolt of the motor connector on the inside of the lefthand chain stay with a T25 Torx key (image 66). Disconnect the two parts of the connector.
- Loosen both wheel nuts with a 19 mm. open wrench and/or socket wrench (image 67).
- Make the rear wheel carefully slide out of the frame. Once it is out of the frame, move it into the direction of the gear box. In doing so you will generate ample play for the belt to be taken off the rear wheel sprocket without any force (image 68 & 70).
- Put the rear wheel on the side and leave the belt on the chainwheel, snubber combination. Make sure the belt hangs freely and does not get twisted or pinched.
- Block the brake pads of the rear disc brake by inserting the enclosed pad separator into the calliper (image 69). This prevents accidental compression of the brake pads by unintended actuation of the brake lever while the rear wheel + disc rotor is not in the frame.
- Now the inner tube and/or tyre of the rear wheel can be fixed or replaced.
- Assembly of the rear wheel is done in reverse order. Make sure to pay attention to the following:
 - First remove the pad separator from the rear brake calliper.
 - Please note the unique tooth shaped profile of the belt and the rear sprocket. Obviously, the matching profiles need to be paired calmly, without force and with ample play prior to assembling the rear wheel in the frame (image 70).
- Once the belt and the rear sprocket are being aligned, the rear wheel can be mounted into the frame. Do not use any force

and make sure to insert the disc carefully between the brake pads.

- Tighten the wheel nuts hand-tight. Check whether the rear wheel axle is sitting against the stop face of the dropouts and whether it is properly centred in the frame. Now the wheel nuts can be fully tightened. The proper torque is 40 Nm.
- Next the belt can be tensioned with the snubber and tightened in reverse order.
- Push the snubber with force into the direction of the chain stay and keep the tension on the belt with one hand.
- With the other hand tighten the bolt at the back side of the snubber. Now you can let go of the snubber.
- Then tighten the bolt at the front side of the snubber with the proper torque.
- Turn the adjustment bolt of the snubber adjustment bolt against its stop face. Turn it a quarter revolution loose and tighten the locknut.
- Connect the two halves of the motor connector and tighten the clamping bolt of the connector on the inside of the lefthand chain stay.

! Caution! Make sure there is sufficient space (at least 5 mm.) between the disc and the wiring harness of the motor cable!

Removal of the front wheel

- Loosen the thru-axle of the front wheel counter clockwise with a 6 mm. Allen key. Take it out of the front wheel (image 71).
- 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 69).
- The assembly of the front wheel is done in reverse order.
- While assembling, please insert the disc brake rotor carefully between the two brake pads.
- Pay attention to the correct torque of the thru axle (max 13,5 Nm).

! Caution! Disc brake rotors can be very hot after riding. Let them cool down prior to disassembly.

Tyres

The tyre size can be found on its sidewall. It is printed in millimetres and inches: 27,5" x 2,40" or 62 – 584 mm. The wheel has a diameter of 584 mm. (27,5") and a width of 62 mm. (2,40").



Image 68

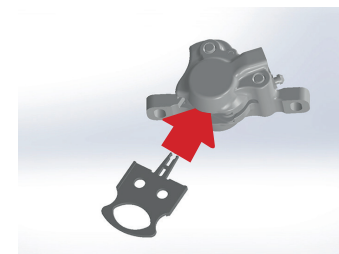


Image 69

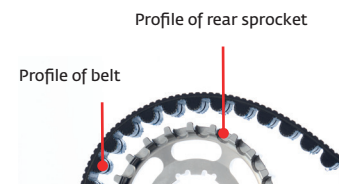


Image 70



Image 71

i **Please note! The recommended tyre pressure is indicated on the sidewall of the tyres (Schwalbe Super Moto 2,0 – 4,0 bar; 30 – 55 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.**



Image 72



Image 73

Disassembly, repair & assembly of the tyres

Regularly check the tyres for cracks and for the height of 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, you 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 72). 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 73).
- Starting opposite to 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. Use no 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.

7.8 Luggage carrier and transport of luggage

Your X Speed has a robust and durable aluminium luggage carrier (image 74). 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.



Image 74

i **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 pedelec + cyclist + luggage.**

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

7.9 Anti-theft protection

Your Speed Pedelec 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 6.5.3 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.

7.10 Accessories

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

i **Please note! Accessories must be compatible with your X Speed speed pedelec. 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.**

8. Transport of your X Speed

You can transport your speed pedelec 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, speed pedelecs and for heavier loads. Please ask your Klever dealer for more specific recommendations.

Not recommended is the transport on the car's roof. The heavier weight and the special frame tubes prevent you from stably fixing the speed pedelec on a roof rack. In addition, the weight of the vehicle is usually higher than the maximum weight limit of the car 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 vehicle inside your car. That offers the best protection.

Transportation by air is nearly impossible, unless you want to transport the X Speed without battery. For airlines these batteries are classified as hazardous 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 6.5.4. Transport of the battery.

9. Maintenance, care and storage

Maintenance

Regular maintenance and care guarantee a longer lifespan of your X Speed. You should regularly carry out simple cleaning and care yourself and let your 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. Please make sure that no electrical contact gets wet. The contacts can be maintained and conserved from time to time with a little care oil (e.g., 1-Step Finish Line). Contact spray is too aggressive and doesn't preserve. You should repair varnish damages at once. All parts liable to corrosion should be maintained and preserved by appropriate means.



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.



Caution! The belt drive must not be greased or lubricated, under no condition. It suffices to clean the belt with some water every now and then.



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 speed pedelec, such as the motor, the sensors, the wiring harness and the battery are maintenance-free. In case you meet unexpected problems with the system, contact our technical hotline (see also section 1 Introduction) or 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.

Storage

The storage of the vehicle should always be in a dry, covered place to minimise the effects of weather and avoid direct sunlight. In case you do not ride your X Speed in winter, you should consider following:

- Store it well cleaned, lubricated and well preserved 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 speed pedelec.
- Protect the electrical contacts with a little care oil.
- The battery should be stored separately, ideally at a temperature of 10 ° to 15 ° Celsius in a dry place. Please fully charge the battery before the first ride in the spring.
- And after storage for more than two months, it is advised to recharge the battery (see section 6.5.1 Charging of the battery).

10. Disposal and 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 Dangerous Goods Legislation requirements during transport or shipping by third parties (agents, air transportation or mail). Please refer to section 6.5.4. Transport of the battery. The transport of all other parts of your X Speed is not particularly limited.

11. Technical data X Speed 45

Display
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

Rechargeable battery
Lithium-Ion
44,4 V/ 19,1 Ah/ 850 Watthour/ 5,5 kg.
44,4 V/ 27,0 Ah/ 1.200 Watthour/ 7,5 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:
850 Wh with 5A charger 4 hours
1.200 Wh with 6A charger 5 hours
Place of charging: on or off vehicle
Charging cycles: 700 (one complete charging is cycle is 0 – 100% capacity)
Range:
850 Wh 75 – 165 km., under average conditions 100 km.
1.200 Wh 100 – 200 km., under average conditions 150 km.
Lifetime: after 2 years of 700 complete cycles at least 60% of the original capacity still remains.

Motor
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: 600 Watt – 49 Nm. / 800 Watt – 54 Nm.
Operating voltage: 44.4 V
Electric motor support: until maximum 45 km/h.
Weight: 5,6 kg. – 600 Watt/ 6,6 kg. – 800 Watt

Standard 5A charger & 6A charger
Input voltage: 200 - 240 V; 47 - 63 Hz
Output voltage: 48 V
Maximum charge current: 5A/ 6A
Output power: 240 Watt – 5A/ 288 Watt – 6A
Size: 185 x 100 x 49 mm. – 5A/ 225 x 100 x 40 mm. – 6A
Weight: 1.2 kg. – 5A/ 1.3 kg. – 6A

Recommended tightening torque for bicycle components

Stem	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
Brake lever	Clamp bolt handlebar	2 x M5	Torx 25	5,5 Nm.
	Reach brake lever	1 x M6	Allen key 3 mm.	-
Grip	Clamp bolt handlebar	1 x M4	Allen key 3 mm.	3,0 Nm.
Display	Clamp bolt handlebar	1 x M4	Allen key 3 mm.	3,0 Nm.
Actuator horn + indicators	Clamp bolt handlebar	1 x M4	Allen key 3 mm.	3,0 Nm
Wing mirror	Clamp bolt handlebar	1 x M4	Allen key 3 mm.	3,0 Nm,
Shifter	Clamp bolt handlebar	1 x M3	Allen key 2,5 mm.	1,3 Nm.
Head light	Mounting bolt	1 x M5	Allen key 4 mm. + 8 mm. open wrench	5,5 Nm.
Front indicator	Adjustment bolt	2 x M3	Allen key 1,5	-
Seat post	Mounting bolt saddle	1 x M6	Allen key 5mm.	9,5Nm.
Seat post clamp	Clamp bolt seat post	1 x M6	Allen key 6 mm.	9,5Nm.
Seat stay split for belt	Mounting bolt	4 x M6	Allen key 4 mm.	9,5 Nm.
Front wheel	Thru-axle	1 x M15	Allen key 6 mm.	13 Nm.
Brake calliper	Mounting bolt	2 x M6	Torx 25	9,5 Nm.
Disc rotor	Mounting bolt	6 x M5	Torx 25	5,5 Nm.
Fender stay	Clamp bolt fork leg	1 x M4	Allen key 2,5 mm.	3,0 Nm.
Front fender	Mounting bolt booster front fork	1 x M4	Allen key 3 mm. + 8 mm. open wrench	3,0 Nm.
Ring lock	Mounting bolt seat stay	4 x M5	Allen key 3 mm.	5,5 Nm.
Luggage rack	Mounting bolt	4 x M5	Allen key 4 mm.	5,5 Nm.
Rear wheel	Hex nut	12 mm. axle	19 mm. socket or open wrench	40 Nm.
Kickstand	Mounting bolt	2 x M6	Allen key 4 mm.	9,5 Nm.
RH pedal	RH threading	9/16" x 20 TPI	15 mm. open wrench	40 Nm.
LH pedal	LH threading	9/16" x 20 TPI	15 mm. open wrench	40 Nm.
Crank set	Mounting bolt	2 x M5	Allen key 4 mm.	5,5 Nm.
	Mounting bolt cover		Allen key 10 mm.	5,5 Nm.
Motor cable	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 steps of 0,5 Nm. If necessary, adjust the maximal value (never exceed it) and loosen the bolt by half a revolution before finally tightening it.

Tools (image 75):

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



Image 75

The gross maximum vehicle weight of the X Speed 45 models shouldn't be more than 150 kg. = cyclist + vehicle + luggage

The payload of the X Speed 45 models = 120 kg.

Tyres

Size: 62 – 584 mm. (27.5" x 2.40")
 Recommended tyre pressure: 2.0 – 4.0 bar (30 – 55 Psi)
 Wheel circumference approximately 2225 mm., the exact circumference depends on the tyre pressure and the gross weight of cyclist + vehicle.

12. Product liability and 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 the X Speed models. The proof is the proof of purchase, which should be stored carefully. You should register your bike on our website: www.klever-mobility.com. This product liability for material defects applies to all components of the entire speed pedelec.

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 section 14 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 section 14 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 damage 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 X Speed model 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. Regarding the battery Klever Mobility guarantees after two years, or alternatively, after 700 charging cycles a remaining capacity of about 60% of the original capacity.
5. In case you officially register the battery of your X Speed speed pedelec on our website (www.klever-mobility.com) Klever extends the warranty term of your 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.
6. The two-year warranty begins on the date of purchase.
7. A warranty claim must be notified immediately.

13. Intended use of your X Speed 45 model

Your X Speed model is designed according to structural requirements for a particular purpose. Thus, the usage is limited to these specific areas. Your speed pedelec 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 speed pedelec always running and roadworthy, regular reviews and inspections are required or necessary repairs should be made immediately. Klever Mobility is not liable in case the X Speed model is 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.

14. Wear

Your X Speed speed pedelec 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. **Brake discs and 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 immediately.
2. **Tyre and inner tubes** are subject to function-related wear and should be checked regularly. Also regularly check the air pressure and tread depth. The air pressure should always be at the manufacturer's recommended operating pressure, which is printed on the tyre sidewall. In case the thread profile of the tyre is no longer deep enough or the tyre has cracked sidewalls, it should be replaced.
3. **Rims and spokes** are stressed while braking or riding over obstacles. Regularly check the concentricity of the rim and the spoke tension. If the wheel has radial or axial play, this should be readjusted immediately. In the event of spoke breakage, the broken spoke should be immediately replaced and the wheel should be re-trued.
4. **Belt, rear sprocket, front belt wheel** are very robust and do not wear as much as the components of derailleur drive trains. 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.
5. **Shifting cables and brake hoses** must be maintained regularly and replaced if necessary. Especially in the case is the speed pedelec is often parked outdoor and exposed to the weather.
6. **Hydraulic oils and 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.
7. **Paintwork** requires regular care. Check all paintwork for damage and rectify the damage. Brake and shifter cables can rub the painted surface of the frame. Protect those spots with a transparent foil.

15. Legal requirements for participation in traffic

Your X Speed model has been equipped according to very strict EC Type-approval Regulation 168/2013 and it 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.

With a maximum speed of 45 km/h, this X Speed model is NOT a regular electric bicycle, but it is a so-called speed pedelec. As a Type-approval vehicle in the L1e-B category 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 speed pedelec helmet as well.

The speed pedelec has another place on the road than ordinary bicycles and regular E-bikes. It has another position in the traffic. Please make sure that you know the local speed pedelec regulations prior to riding your X Speed model on public roads.

A speed pedelec must be equipped with a well audible horn, a wing mirror (EU LH-side & UK RH side), a lighting system with quality marks for the head light and the tail light with integrated brake light, reflectors and with 2 sets of brakes independently actuating the front and rear wheel.

16. Regular maintenance and inspections

In order to keep your X Speed model 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.



Please note! 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 speed pedelec or may even lead to severe accidents.

17. 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 6.5.2. Battery range).

Battery	Range
850 Wh	75 – 165 km.
1.200 Wh	100 – 200 km.

This table offers an 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.

How can I protect my X Speed model 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 be able to lock your speed pedelec to the solid fixtures.

Can I ride my speed pedelec in wintertime?

In general, there is no problem whatsoever to ride your X Speed 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 X Speed model via air?

Because E-bike battery packs are being classified as hazardous 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 X Speed models is a class L1e-B Type-approval vehicle with a maximum speed of 45 km/h. Therefore, you do need a dedicated liability insurance. You do need to wear a helmet approved for speed pedelecs. 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 speed pedelec 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 from 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.

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 charger.

18. X Speed Passport

Fill out immediately all data after purchase of your X Speed model 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

19. 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		

20. Annex Certificates of Conformity

20.1 Model X Alpha 45

KLEVER MOBILITY INC.

**CERTIFICATE OF CONFORMITY ACCOMPANYING EACH VEHICLE
IN THE SERIES OF THE TYPE WHICH HAS BEEN APPROVED**

EU CERTIFICATE OF CONFORMITY

The undersigned,
hereby certifies that the following complete vehicle:

- 0.1. Make (trade name of the manufacturer): Klever
- 0.2. Type: X4
- 0.2.1. Variant: KY5P
- 0.2.2. Version: N.A.
- 0.2.3. Commercial name (if available): X Alpha 45
- 0.3. Category, subcategory and sub-subcategory of vehicle: L1e-B
- 0.4. Company name and address of manufacturer:
KLEVER MOBILITY INC.
No. 4-1, 6, 8, Lu, 7th, Sec. 3, Zhongyuan Rd., Tachung Dist., New Taipei City 236, Taiwan, R.O.C.
- 0.4.2. Name and address of manufacturer's authorized representative (if any):
KLEVER MOBILITY EUROPE GmbH
Dorothea, 8, 50859 Köln, Germany
- 0.5.1. Location of the manufacturer's statutory plate(s): C, s350, y0, z890
- 0.5.2. Method of attachment of the manufacturer's statutory plate(s):
Sticker on the bottom of top tube near head tube
- 0.6. Location of the vehicle identification number: R, s430, y20, z360
1. Vehicle identification number: RHKX12L0XXXXXXX

conforms in all respects to the type described in EU type-approval (e13*1682013*00232*03)
issued on (Jan 15, 2021) and can be permanently registered in Member States having right/left-hand traffic and using metric/imperial units for the speedometer.

Place: _____ Date: _____

Page 1 of 2

KLEVER MOBILITY INC.

VEHICLE CATEGORY I

General construction characteristics

- 1.3. Number of axles : 2 and wheels : 2
- 1.3.2. Permitted axles : R

Main dimensions

- 2.2.1. Length : 1800 mm
- 2.2.2. Width : 478 mm
- 2.2.3. Height : 1100 mm
- 2.2.4. Wheelbase : 1120 mm

Masses

- 2.1.1. Mass in running order : 28 kg (propulsion battery excluded)
- 2.1.2. Actual mass : 100 kg
- 2.1.3. Technically permissible maximum laden mass : 150 kg
- 2.1.3.1. Technically permissible maximum mass on front axle : 45 kg
- 2.1.3.2. Technically permissible maximum mass on rear axle : 105 kg

Powertrain

- 3.1.2.1. Manufacturer : Kwong Yung Motor Co., Ltd.
- 3.1.2.2. Electric motor code (as marked on the engine or other means of identification) : K3M021P
- 3.1.2.4. 18/30 minute power : 0.6 kW
- 3.1.1. Electric vehicle configuration : pure electric/hybrid electric/masspower-electric
- 3.9.2. Maximum assistance factor : 3.0

Maximum speed

- 1.8. Maximum speed of vehicle : 45 km/h
- 3.9.3. Maximum vehicle speed for which the electric motor gives assistance : 45 km/h

Drive-train and control

- 3.5.3.9. Transmission type(s) : O
- 3.5.4. Gear ratios : N.A.
- 3.5.4.1. Final drive ratio : N.A.

Identification of type

- 6.18.1.1. Type code designation : Axle 1 and 2 : 57-584 (57110-23 MC), 35L, 300 kPa, 584 mm-30 mm

Bodywork

- 6.16.1. Number of seating positions : 1

Environmental performance

- 4.0.1. Environmental stop : Euro 3A-E6+
- 4.0.6. Sound level measured according to : N.A.
- 4.0.6.1. Stationary : N.A.
- 4.0.6.2. Drivably : N.A.
- 4.0.6.3. Limit value for L_{max} : N.A.
- 3.2.15. Exhaust emissions measured according to : N.A.
- 3.2.15.1. Type II test: tailpipe emissions after cold start, including the deterioration factor, if applicable : N.A.
- 3.2.15.2. Type II test: tailpipe emissions at (increased) idle and free acceleration : N.A.
- 3.2.15.3. Smoke corrected absorption coefficient : N.A.

Energy efficiency

- 4.0.4. Energy consumption : 16 Wh/km

Additional information

- 9.1. Remarks : N.A.
- 9.2. Exemptions : N.A.

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20.2 Model X Speed Pinion & X Pinion 45

KLEVER MOBILITY INC.

**CERTIFICATE OF CONFORMITY ACCOMPANYING EACH VEHICLE
IN THE SERIES OF THE TYPE WHICH HAS BEEN APPROVED**

EU CERTIFICATE OF CONFORMITY

The undersigned,
hereby certifies that the following complete vehicle:

- 0.1. Make (trade name of the manufacturer): Klever
- 0.2. Type: S4
- 0.2.1. Variant: TDSP
- 0.2.2. Version: N.A.
- 0.2.3. Commercial name (if available): X Speed Pinion
- 0.3. Category, subcategory and sub-subcategory of vehicle: L1e-B
- 0.4. Company name and address of manufacturer:
KLEVER MOBILITY INC.
No. 4-1, 6, 8, Lu, 7th, Sec. 3, Zhongyuan Rd., Tachung Dist., New Taipei City 236, Taiwan, R.O.C.
- 0.4.2. Name and address of manufacturer's authorized representative (if any):
KLEVER MOBILITY EUROPE GmbH
Dorothea, 8, 50859 Köln, Germany
- 0.5.1. Location of the manufacturer's statutory plate(s): C, s350, y0, z890
- 0.5.2. Method of attachment of the manufacturer's statutory plate(s):
Sticker on the bottom of top tube near head tube
- 0.6. Location of the vehicle identification number: R, s430, y20, z360
1. Vehicle identification number: RHKX12L0XXXXXXX

conforms in all respects to the type described in EU type-approval (e13*1682013*00232*04)
issued on (Oct 25, 2021) and can be permanently registered in Member States having right/left-hand traffic and using metric/imperial units for the speedometer.

Place: _____ Date: _____

Page 1 of 2

KLEVER MOBILITY INC.

VEHICLE CATEGORY I

General construction characteristics

- 1.3. Number of axles : 2 and wheels : 2
- 1.3.2. Permitted axles : R

Main dimensions

- 2.2.1. Length : 1800 mm
- 2.2.2. Width : 478 mm
- 2.2.3. Height : 1100 mm
- 2.2.4. Wheelbase : 1120 mm

Masses

- 2.1.1. Mass in running order : 28 kg (propulsion battery excluded)
- 2.1.2. Actual mass : 100 kg
- 2.1.3. Technically permissible maximum laden mass : 150 kg
- 2.1.3.1. Technically permissible maximum mass on front axle : 45 kg
- 2.1.3.2. Technically permissible maximum mass on rear axle : 105 kg

Powertrain

- 3.1.2.1. Manufacturer : TDCM CORPORATION LIMITED
- 3.1.2.2. Electric motor code (as marked on the engine or other means of identification) : K3M016P
- 3.1.2.4. 18/30 minute power : 0.6 kW
- 3.1.1. Electric vehicle configuration : pure electric/hybrid electric/masspower-electric
- 3.9.2. Maximum assistance factor : 2.8

Maximum speed

- 1.8. Maximum speed of vehicle : 45 km/h
- 3.9.3. Maximum vehicle speed for which the electric motor gives assistance : 45 km/h

Drive-train and control

- 3.5.3.9. Transmission type(s) : O
- 3.5.4. Gear ratios : N.A.
- 3.5.4.1. Final drive ratio : N.A.

Identification of type

- 6.18.1.1. Type code designation : Axle 1 and 2 : 57-584 (57110-23 MC), 35L, 300 kPa, 584 mm-30 mm

Bodywork

- 6.16.1. Number of seating positions : 1

Environmental performance

- 4.0.1. Environmental stop : Euro 3A-E6+
- 4.0.6. Sound level measured according to : N.A.
- 4.0.6.1. Stationary : N.A.
- 4.0.6.2. Drivably : N.A.
- 4.0.6.3. Limit value for L_{max} : N.A.
- 3.2.15. Exhaust emissions measured according to : N.A.
- 3.2.15.1. Type II test: tailpipe emissions after cold start, including the deterioration factor, if applicable : N.A.
- 3.2.15.2. Type II test: tailpipe emissions at (increased) idle and free acceleration : N.A.
- 3.2.15.3. Smoke corrected absorption coefficient : N.A.

Energy efficiency

- 4.0.4. Energy consumption : 16 Wh/km

Additional information

- 9.1. Remarks : N.A.
- 9.2. Exemptions : N.A.

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Image 77

21. Imprint

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