



**HVR 50.4 MINI – HVR 50.4
HVR 50.4 PRO – HVR 60.4
Manual**



⚡ WARNING:

Read this manual carefully before operating your HVR!

Dear HVR customer,

Thank you and congratulations on your purchase of an HVR Electric motorcycle.
Read the manual carefully and completely to ensure safe and long operation of the HVR and act prudently during operation.

The HVR is the electric motorcycle for children, with a powerful electric drive which is perfectly adaptable to your child's riding skills.
Due to the large battery capacity, long riding times are possible.
The electric drive system is almost maintenance-free and equipped with a variety of sensors to ensure easy and safe handling.

Make sure that your child is mentally and physically capable to ride motorcycles.
Safe cycling is a prerequisite for this.
Your child must always wear appropriate protective clothing for motorcycling. In the beginning, you must explain to your child the functions and the controls of the motorcycle as well as the riding technique.

With the HVR Connect app, the performance and speed of the HVR can be adjusted in a very wide range.
This allows you to walk next to your child with a low power setting and assist with the first driving tests.
For experienced young racers, the HVR can be transformed in seconds into a winning motorcycle with over 8000 watts of power and 70 km/h top speed.

With this electric motorcycle we want to give you and your child the opportunity to get into the motorcycle off-road sport more easily and have a lot of fun.
The low maintenance effort and the low maintenance costs also bring joy to the parents.
The low emissions, especially the low noise emissions, make it possible to drive in completely new places and much more frequently.

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1. IMPORTANT SYMBOLS AND NAMES

 **WARNING:** "WARNING" indicates a potentially dangerous situation that can result in injury or death and damage to objects if the situation is not prevented. The symbol "WARNING" must therefore be given special attention.

 **ATTENTION:** "ATTENTION" indicates a situation that can cause damage or malfunction if the situation is not prevented. Be sure to follow the instructions marked with the "ATTENTION" icon.

 **NOTE:** "NOTE" displays helpful information that allows better use of the motorcycle. Observance of the "NOTE" symbol improves or expands the range of applications of the motorcycle.



2. SAFETY NOTE

WARNING:

Read this manual carefully before operating the HVR!

To ensure safe and long operation, please observe the following instructions:

- Your child must be in the mental and physical condition to ride a motorcycle
- The minimum age is 6 years
- Cycling is the basic requirement for motorcycling
- Explain to your child how to handle the motorcycle and discuss this with your child in a way that he or she understands the safe handling of the motorcycle
- Rotating parts such as chain, sprocket, wheels, etc. pose injury hazards for fingers and others body parts, therefore, be sure to keep a safe distance in operation
- Never let your child ride a motorcycle unattended
- Your child must always wear appropriate protective clothing (motorcycle helmet, protectors, motorcycle boots, gloves, etc.)
- The safety equipment must always be in proper condition
- Be a good role model and always wear protective clothing when riding a motorcycle
- Explain to your child the riding technique and the controls of the motorcycle
- Ensure the correct power and speed setting that can be used by of your child and control this setting
- The charging of the motorcycle may only be carried out by an adult, as well as the review before each trip and maintenance
- The charging process must be supervised by an adult
- Do not urge your child to ride above his or her abilities
- In order to participate in races, your child must have appropriate experience and be in the correct physical and mental state.
- The wrist strap of the safety switch can be worn on the left arm while riding to switch off the motorcycle in the event of an accident.
- The maximum rider weight is 50kg for the HVR 50.4 and 70kg for the HVR 60.4 each including full equipment!
- Visit a training course at a motorsport club with experienced trainers
- The braking system can get very hot while driving, touch it only after a long cooling period.
- If not in use, remove the tear-off switch to protect against unauthorised use



3. TECHNICAL DATA

	HVR 50.4 MINI	HVR 50.4	HVR 50.4 PRO	HVR 60.4
Class	50 cc (Minicross)	50 cc (Minicross)	50 cc (Minicross)	65 cc (Minicross)
Length	1350 mm	1350 mm	1400 mm	1600 mm
Wheelbase	930 mm	940 mm	980 mm	1135 mm
Seat	580 mm	630 mm	685 mm	770 mm
Handlebar height	770 mm	820 mm	890 mm	990 mm
Wheels	1.4x10 front / 1.4x10 rear	1.4x12 front / 1.4x10 rear	1.4x12 front / 1.4x10 rear	1.4x14 front / 1.4x12 rear
Tires	front 10" 2,50 rear 10" 2,50	front 12" 60/100 rear 10" 2.75	front 12" 60/100 rear 10" 2.75	front 14" 60/100 rear 12" 80/100
Brakes	Front: Two-piston system with 195mm brake disc Rear: Single-piston brake pliers with 170mm disc each	Front: Two-piston system with 195mm brake disc Rear: Single-piston brake pliers with 170mm disc each	Front: Two-piston system with 195mm brake disc Rear: Single-piston brake pliers with 170mm disc each	Front: Two-piston system with 210mm brake disc Rear: Single-piston brake pliers with 170mm disc
Motor	Brushless HVR liquid-cooled 3 phase E-motor	Brushless HVR liquid-cooled 3 phase E-motor	Brushless HVR liquid-cooled 3 phase E-motor	Brushless HVR liquid-cooled 3 phase E-motor
Inverter	BLDC inverter 300 A peak	BLDC inverter 300 A peak	BLDC inverter 300 A peak	BLDC inverter 300 A peak
Battery	50,4 V 18 Ah Li Ion	50,4 V 18 Ah Li Ion	50,4 V 18 Ah Li Ion	50,4 V 18 Ah Li Ion
Performance	Max. 8000 Watts	Max. 8000 Watts	Max. 8000 Watts	Max. 8000 Watts
Speed	Max. 70 Km/h	Max. 70 Km/h	Max. 70 Km/h	Max. 60 Km/h
Primary drive	420 chain 10:45	420 chain 10:45	420 chain 10:45	420 chain 9:55
Front Suspension	33mm USD 170mm Road	33mm USD 170mm Road	37mm USD 180mm Road	33mm USD 215mm Road
Rear Suspension: central shock absorber	170 mm path	220 mm path	230 mm path	275 mm path
Weight	43 kg	43 kg	44 kg	56 kg



4. OPERATING ELEMENTS



4.1 BATTERY DISPLAY WITH ON/OFF SWITCH



The on/off switch is in the middle of the display.

- GREEN LED: Battery charge status (abbreviation: SOC) LED 1 - 7
- YELLOW LED: Temperature warning (blink) / Temperature shutdown (solid)
- RED LED: 0% charge state (SOC) or error

After pressing of the on/off switch the green LEDs of the battery indicator light up one after the other, the yellow and the red LED briefly light up for the test. After that, the current SOC (charge status) is displayed and the motorcycle is ready to drive.

NOTE:

For safety reasons, the HVR automatically switches off after 60 seconds of standstill, unless it is connected to the APP

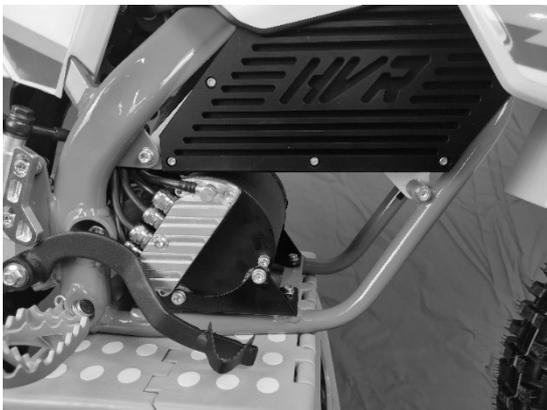
SOC Battery indicator

SOC (charge state)	LED-Display
0 to 16%	LED 1 blinking
16 to 27%	LED 1 solid
28 to 39%	LIGHTS LED 1 to 2
40 to 51%	LIGHTS LED 1 to 3
52 to 63%	LIGHTS LED 1 to 4
64 to 75%	LIGHTS LED 1 to 5
76 to 88%	LIGHT LED 1 to 6
88 to 100%	LIGHTS LED 1 to 7

5. ELECTRIC DRIVE

The electric powertrain of the HVR includes the battery, the electric motor and the inverter.

5.1 BATTERY



The traction battery is the heart of an electric vehicle, performance and range depend to a large extent on the battery. The HVR lithium-ion battery has a specially designed, sophisticated battery management system (BMS) installed to ensure that the battery is always operated within the permissible limits. A variety of sensors constantly measure the parameters of the battery such as, the voltages of the individual cells, current, temperature, charge state (SOC) etc., the battery is permanently monitored and protected by the BMS.

SOC (charge state) calibration:

The charge status is calculated using the current and voltage measurement in order to precisely determine the currently available capacity of the battery. It is recommended to discharge the battery about every 10 charging cycles to 0% SOC until the motorcycle shuts down. After that, the battery should be charged to 100%, this procedure calibrates the charge state determination.

 **NOTE:**

The BMS protects the battery from too cold and too warm temperatures. For driving in cold conditions, it is recommended to warm the motorcycle before driving in a warm place with about 10-25°. This improves performance and range.

Very hot ambient temperatures and driving with high power consumption heats the battery cells. The aluminium side plates serve as heat sinks for the battery cells.

 **NOTE:**

If the battery is too hot or too cold to drive or charge, the yellow LED of the indicator lights up and the BMS prevents driving or charging until the battery temperature is back in the required range. The battery temperature can be displayed with the app.

 **NOTE:**

For safety reasons, the HVR 50.4 automatically turns off after 60 seconds of standstill, unless it is connected to the app.

HVR Battery Specifications:

Cells	84 individual 18650 li-Ion cells
Battery case	Plastic Aluminum Composite Enclosures
Voltage	50.4 Volt
Capacity	18 Ah
Energy content	907 Wh
Battery temperature range driving	0°C to 67°C
Battery temperature range charging	5°C to 50°C
Charging time (300 Watts standard charger)	3 hours
Fast charger charging time (optional)	1 h (typical charge from on the track 20-90%)



⚡ WARNING:

Risk of fire and burning

- NEVER open, damage or burn the battery
- NEVER short-circuit the battery poles
- NEVER reverse polarity
- NEVER bring near high heat or fire.
- NEVER try to use another charger than the original HVR charger.

5.2 ELECTRIC MOTOR AND MOTOR CONTROL UNIT (INVERTER)

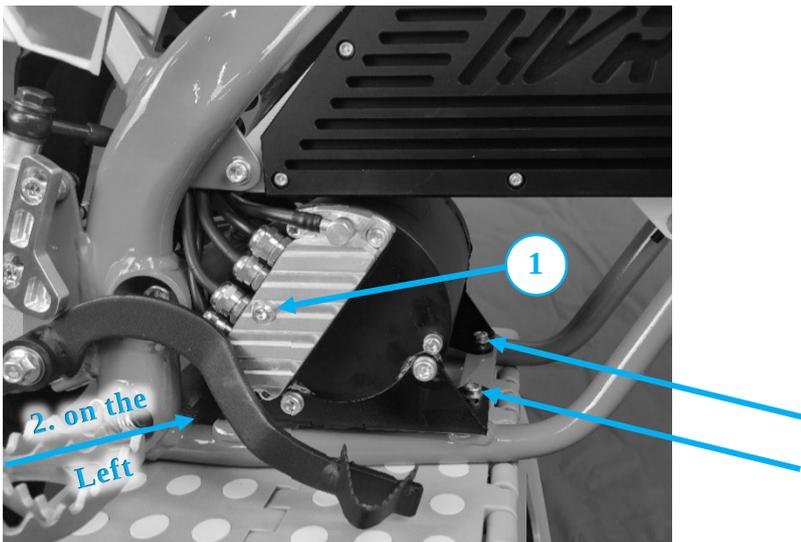
The HVR electric motor and inverter ensure an easy-to-control power delivery. No clutch or gear shift is required for driving, the power is available when the driver wants it.

💡 NOTE:

The HVR electric motor has an innovative liquid cooling system to transfer the temperature from the inside to the housing. The cooling is designed for the service life of the motorcycle and therefore does not need to be changed.

⚠ ATTENTION:

Do not open the motor, otherwise coolant will leak. The motor may only be removed all in one via the 4 screws at the bottom of the mounting brackets, the mounting angles remain on the motor. If oil has leaked, it can be refilled by the central screw **1** into the engine block. Use only HVR coolant and only fill up to the hole.



 **WARNING:**

The motor housing can get very warm after high-performance rides, so don't touch it.

 **NOTE:**

The cooling fluid is a special oil that is completely non-toxic and does not attack components or is harmful to the environment.

 **NOTE:**

The cooling fluid is only used for better dissipation of heat from the inside of the engine, even if it is driven without a cooling fluid, there is no damage to the vehicle. However, it can cause the engine to become hot under heavy loads and the motorcycle to shut down to protect the engine from damage.

6. CHARGING

 **WARNING:**

The HVR charger is operated with 230 V, make sure that the housing and cables do not show any damage before each operation, never use the charger if the charger or cables are damaged, but send it to HVR for repair. Never open the charger, there is high voltage inside. The HVR charger is only indoors approved for use, never use the charger in wet conditions. The Air intakes and the fan must not be blocked or obstruct the airflow. Use only the original HVR charger to charge the HVR. The charging process must always be performed and supervised by an adult, never let a child perform the charging process of the motorcycle.

 **NOTE:**

Driving during charging is prevented by the vehicle electronics.

 **NOTE:**

To start charging, the battery must have a temperature in the range of 5-50°.

CHARGING PROCESS HVR:

- ▷ Connect the electrical plug of the HVR charger to the 230 V household socket.
- ▷ Open the dust cap (bayonet closure) on the charging port of the HVR.





▷ Connect the charger's charging plug to the charging port of the motorcycle (bayonet closure), charging now starts automatically and the LED on the HVR charger lights up red.



▷ The flashing green LED on the motorcycle shows the current SOC.

SOC (charging state)	LED display on motorcycle
0 to 16%	LED 1 flashes
16 to 27%	LED 1 solid, LED 2 Flashes
28 to 39%	LED 1 to 2 solid, LED 3 Flashes
40 to 51%	LED 1 to 3 solid, LED 4 Flashes
52 to 63%	LED 1 to 4 solid, LED 5 Flashes
64 to 75%	LED 1 to 5 solid, LED 6 Flashes
76 to 88%	LED 1 to 6 solid, LED 7 Flashes
88 to 100%	LED 1 to 7 solid



Normal charging



Motorcycle fully charged



The battery is too hot or too cold to charge



The battery is charged, gradually more and more green LEDs (the last flashing) are glowing depending on SOC (state of charge) see table. On the charger, the LED lights up red.

The battery is fully charged. 60 seconds later the motorcycle turns off and the green LEDs on the motorcycle goes out. On the charger, the LED lights up green.

If the yellow LED on the motorcycle and the green LED on the charger light up, the battery is too hot or too cold to charge. If the battery cools down within the next hour, charging will start automatically. If the battery is too cold, take the motorcycle to a warmer place and restart the charging process when the battery is warm enough.

NOTE:

Should the battery be too warm to charge it can be helpful to wet the black aluminum side cover of the battery with water, for example with a simple spray bottle. The cooling effect caused by the evaporating water very quickly removes the heat from the battery.

NOTE:

The exact charge state and other parameters can be viewed during the charging process with the HVR app.



 **NOTE:**

Charging over 90% is much slower due to the balancing of the cells, so it is recommended, to charge the bike only 90% full during the break at the track during training to maximize the training time.

▷ Remove the charging plug from the motorcycle and close the dust cap of the charging port

▷ Remove the plug from the household socket.

 **NOTE:**

Charging can be interrupted and restarted at any time with the on/off switch, for this the charger must be connected to the socket and the motorcycle.

 **NOTE:**

The BMS in the HVR battery ensures optimum battery performance and service life. Charging is only possible with the original HVR charger.

 **NOTE:**

To charge, the temperature of the battery must be between 5°C and 50°C, otherwise the yellow LED on the battery indicator will light up and charging will not be possible. This is used to ensure a long battery life and to protect the battery cells. If the battery is too warm and cools down within the next hour, charging will start automatically. If the battery is too cold, take the motorcycle to a warmer place and restart the charging process when the battery is warm enough.

7. SETTING UP THE HVR APP

 **NOTE:**

For safety reasons, the HVR turns off automatically after 60 seconds of standstill. As long as the motorcycle is connected to the app, it remains permanently active.

7.1 CONNECTION / PASSWORD REGISTRATION

To connect to the HVR and your Android smartphone (Android 5.0 or later), download the HVR Connect app from the Google Play Store.

Open the HVR Connect app, turn on the motorcycle and press CONNECTION.

The motorcycle is found as "HVR", select this device now in the list to register it. Assign any name for the motorcycle, enter the APP code and confirm it with OK.

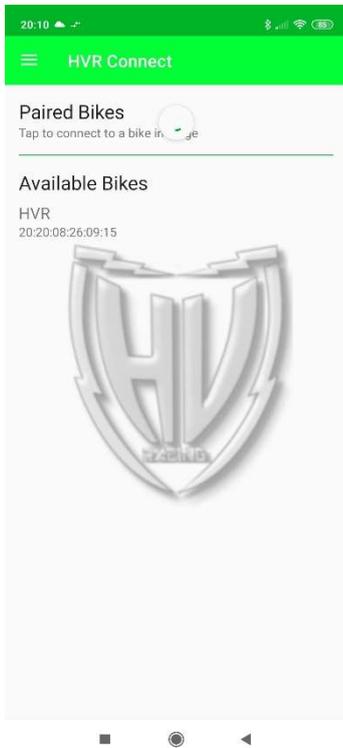


NOTE:

The APP code can be found in the extradition document and on the inverter under the seat.

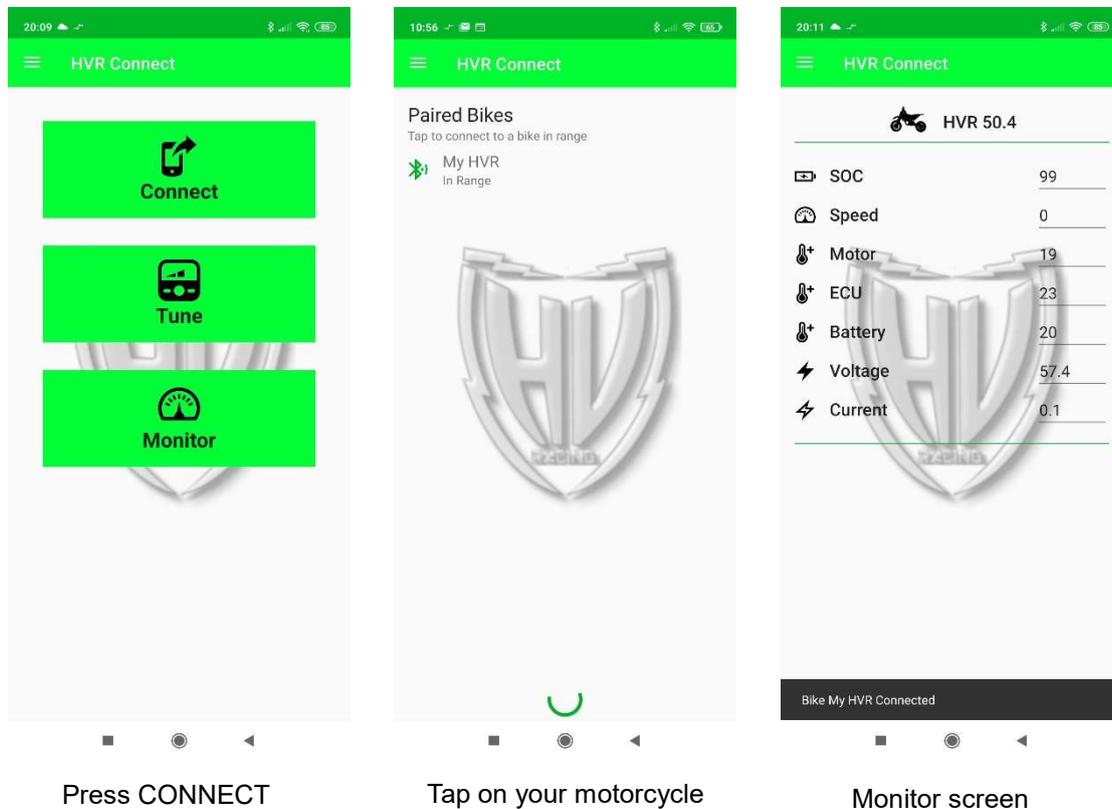
Now the motorcycle is registered and available in the list of registered motorcycles. When it is within range, it can be connected by pressing the name of your motorcycle in the APP.

This process is also described in the Quick Start Guide!



7.2 MONITOR DATA WATCH

The MONITOR function shows the current parameters such as SOC, temperatures, voltage, current, etc. of the motorcycle:



7.3 ADJUSTING THE MOTORCYCLE SETTING

⚠ ATTENTION:

The motorcycle must be jacked up (with the rear wheel in the air) and must be at a standstill during adjustment. The safety killswitch must be removed for the adjustment process. The HVR Connect app will show you a hint when the safety killswitch is still on the vehicle. The adjustment is only possible after removing the safety killswitch.

Select SETTING to adjust the performance data of the motorcycle.

3 preset mappings can be selected, these mappings make it easier to get started.

If necessary, they serve as a starting point and can be individually modified and saved as new custom mappings in order to match the HVR to your child's driving skills and the track conditions optimally.



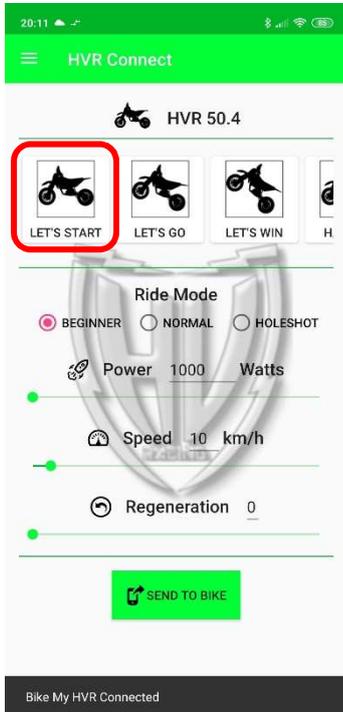


Press TUNE

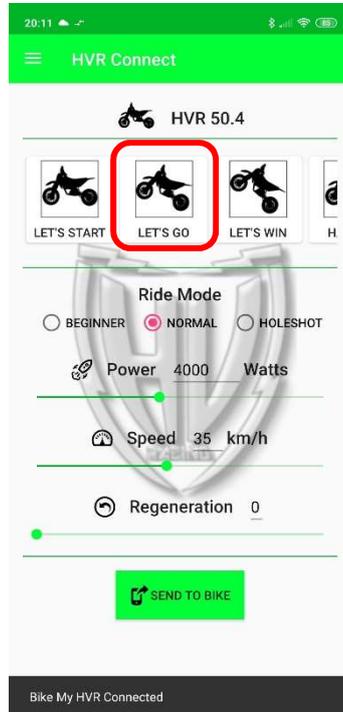


Tap on your motorcycle

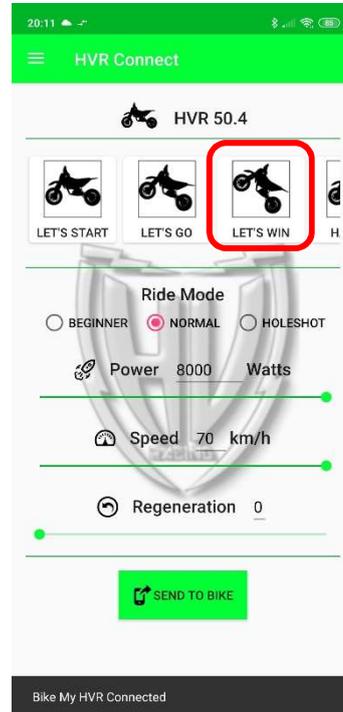
There are 3 preset mappings available:



LET'S START
For beginners



LET'S GO
For advanced



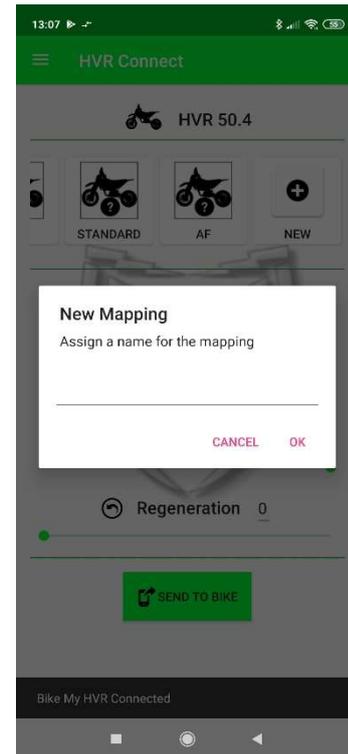
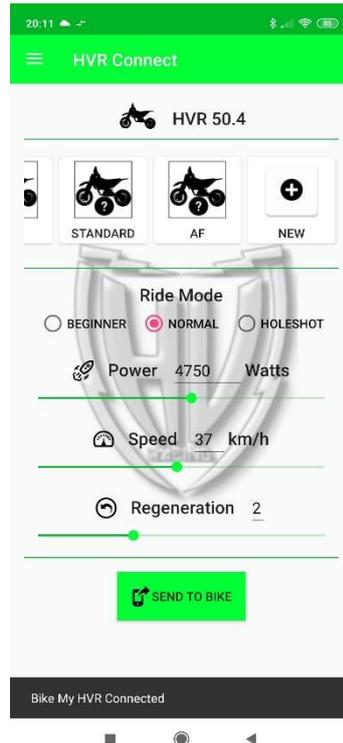
LET'S WIN
For real racers



SPEED:
6 - 70 km/h

PERFORMANCE:
1000 - 8000 watts

RECUPERATION:
0 no engine brake /
Recuperation
6 strong engine brake /
Recuperation



Adjust the values accordingly and press SEND to transmit the set parameters to the motorcycle. The display starts flashing and the motorcycle turns off after successful transmission of the data. From the next start, the new parameters are activated.

If you want to save the set values, you can press NEW after you have set the parameters accordingly and assign a name for it.
After confirming with OK, the new mapping is saved.

You can choose one of the following driving modes:

- | | |
|----------|---|
| BEGINNER | Is the mode for complete beginners, it ensures a gentle Throttle acceptance even if the gas handle is moved jerky. It cannot be adjusted in conjunction with high performance. |
| NORMAL | Is the default mode and should be used as soon as there is a little feeling for the throttle handle. In contrast to the beginner mode, it ensures a direct response of the gas handle. |
| HOLESHOT | Is the mode for real experts, it ensures a direct and aggressive gas acceptance and thus, the strongest acceleration. holeshot mode is not recommended in slippery track conditions. It cannot be chosen in conjunction with low performance. |



 **WARNING:**

After each adjustment, check if the motorcycle behaves as you expect and the maximum speed is set correctly. Hold the motorcycle well, then turn the throttle handle and let the rear wheel turn in the air, making sure that no one is injured on the rotating parts.

8. TRANSPORT

When transporting, pay attention to the following points:

- Motorcycle best to transport upright and well fixed
- If you need to transport the motorcycle lying down, place the motorcycle on the left side (on which the chain is located)

In order to protect your vehicle from contamination, please place a blanket underneath.

 **NOTE:**

Should you transport the motorcycle lying on the left side, it is possible that a small amount of cooling fluid is leaking. The cooling liquid is non-toxic.

9. BEFORE THE FIRST DRIVE

 **WARNING:**

Before driving for the first time, familiarize your child with the controls of the motorcycle and explain how to use the motorcycle. The setting of the motorcycle must match to your child's riding skills. Start with low power and low speed. Make sure your child can reach the controls well. Get to know your child's good and safe driving style.

10. DRIVING

 **WARNING:**

Electric vehicles are ready to drive immediately after switching on without a running engine or noise announcing it. An unintentional rotation on the throttle handle can set the motorcycle in motion unexpectedly.

Driving on public roads is forbidden, let your child drive only on closed training grounds. The HVR is not equipped with any lighting system, so it is not allowed to operate in the dark.

Before each ride, check the technical condition of the motorcycle, in particular the controls and their smoothness, the brakes (brake pads, brake fluid level), the chain tension, the condition of the chain and the tires.

When riding a motorcycle, your child must always wear the appropriate protective clothing with protectors and a motorcycle helmet. The wrist-strap of the safety switch must be worn on the left arm in order to switch off the motorcycle in the event of an accident.

Instruct your child on a driving style that is adapted to their driving ability and the route.



11. CLEANING

After driving in the terrain, first carefully clean the motorcycle with a scraper or spatula to remove the coarse dirt.

ATTENTION:

Do not use a scraper or spatula made out of metal, this could lead to damage to the motorcycle.

Then wash the motorcycle with a soft water jet, do not aim the water jet directly at electronic components and cables.

Dry the motorcycle, grease the chain and check the smoothness of the controls.



Do not use a high-pressure cleaner!

12. DECOMMISSIONING FOR LONGER PERIODS

If the motorcycle is not used for a longer time, e.g. for more than a month, clean the motorcycle, lubricate the chain and charge or discharge (depending on the state of charge) the battery to about 50% SOC. The recommended storage temperature is between 10°C to 15°C, do not exposed the motorcycle to direct sunlight.

For a longer decommissioning e.g. Longer than 3 months should be checked once a month with the MONITOR function of the HVR app, if the battery voltage has fallen below 46V, charge the battery.

13. MAINTENANCE

13.1 CHAIN

13.1.1 CHAIN CLEANING

Check the chain for coarse dirt, if it is dirty it should be cleaned.

Place the motorcycle on a stand so that the rear wheel can rotate freely.

Rinse coarse dirt with a soft water jet (not a high-pressure cleaner).

Remove used lubricating residues with an appropriate chain cleaning agent.

After drying, chain spray must be applied.



13.1.2 CHECK CHAIN TENSION

WARNING:

Excessive chain tension can lead to increased wear on the chain, chain sprocket and possibly other components tearing or even breaking them.

Too low chain tension can cause the chain to jump off the chain pinion or sprocket. If this is the case, the rear wheel can block or the motor may be damaged.

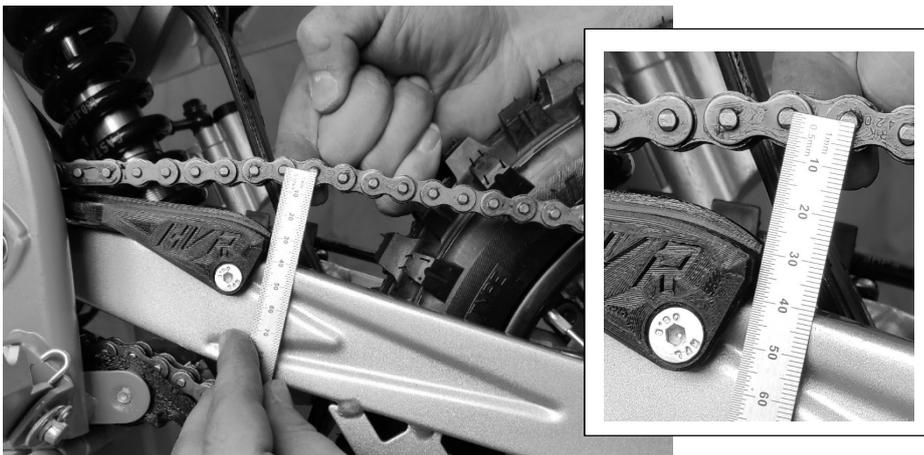
Incorrect chain tension can lead to damage on the components and accidents!

ATTENTION:

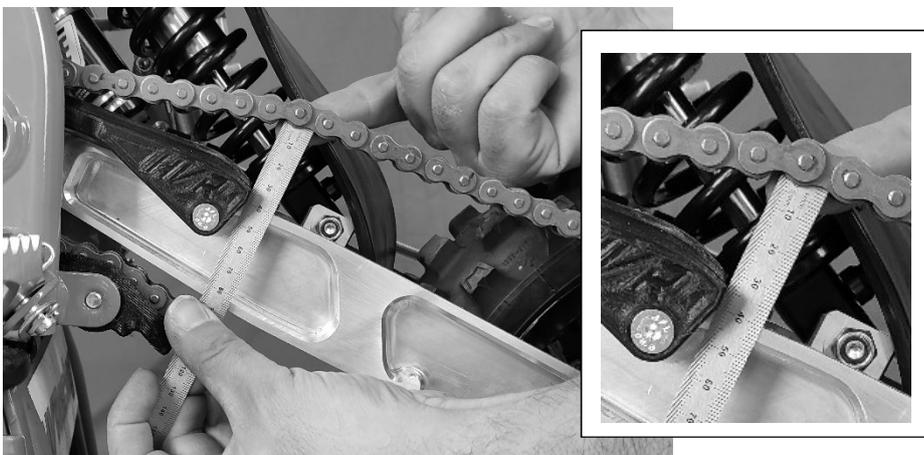
The chain tension must be checked before each ride.

To do this, lift the chain as shown in the respective image. At the rear edge of the chain guide, the distance must be 40 mm.

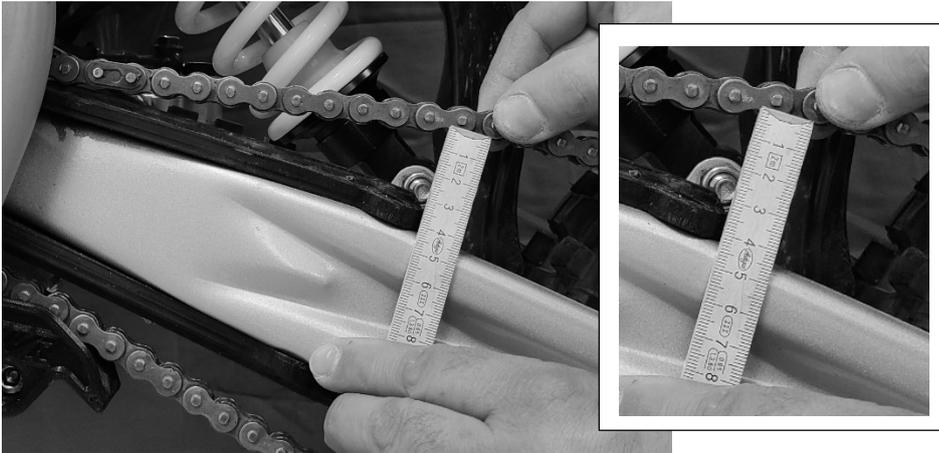
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50.4 PRO



60.4



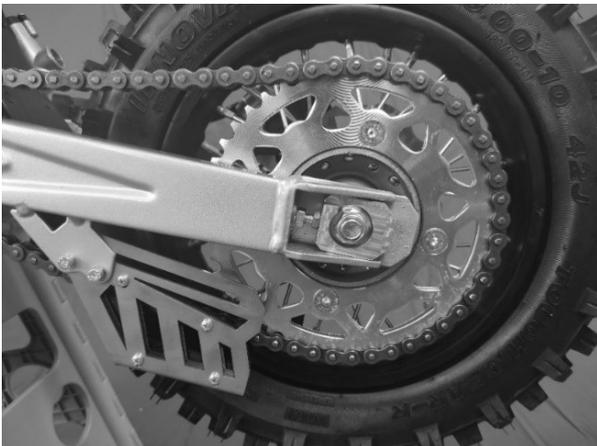
13.1.3 SETTING CHAIN TENSION

WARNING:

A rear wheel that is not properly mounted can lead to damage to the components and accidents!

The chain tension is adjusted by loosening the rear wheel axle and is set with the nuts via the two chain tensioners. Pay attention to an identical setting on both sides to ensure a straight mounted rear wheel. Make sure that the adjustment screw is fixed again with the counter nut. At the swingarm of the 50.4Pro only the nuts are used to adjust the position (don't try to turn the head of the screw) Finally the rear axle must be tightened with the prescribed torque.

50.4/ 50.4 MINI



50.4PRO



NOTE:

In the first hours of operation it is necessary to check and adjust the chain tension more often, since in addition to the elongation of the chain, also the chain guide and sprockets are also worn in.

13.2 TIRES

13.2 AIR PRESSURE

WARNING:

If the tire air pressure is too low, the wear increases and the tire valve can tear off.

Excessive tire air pressure leads to over-stressing of the material and may cause the tire to burst.

Therefore, check the air pressure of the cold tires before driving.

Tire air pressure	
Front	1,5 bar minimum
Rear	1,5 bar minimum

If the tire pressure should not match the default, correct it accordingly.

NOTE:

If you want to drive consciously with lower tire pressure, we recommend using a tire holder.

13.3 BRAKE FUNCTION AND PADS

13.3.1 CHECK BRAKE DISCS



Front wheel



Rear wheel

⚡ WARNING:

Worn brake discs reduce braking effect, which can lead to accidents, injuries and damage to the components!

Therefore, check the brake disc thickness regularly!

To do this, measure the thickness of the brake discs on the front and rear wheels in several places.

💡 NOTE:

Each braking process reduces the brake disc thickness in the area between the brake pads.

Wear limits of the brake discs (min. thickness)	
Front	2,2 mm
Rear	2,2 mm

If the thickness of the brake disc is below these values, the brake disc must be changed.

Also check the two brake discs for damage, cracks and deformations.

⚡ WARNING:

If the brake discs cause damage, cracks or deformations, the brake disc must be replaced!

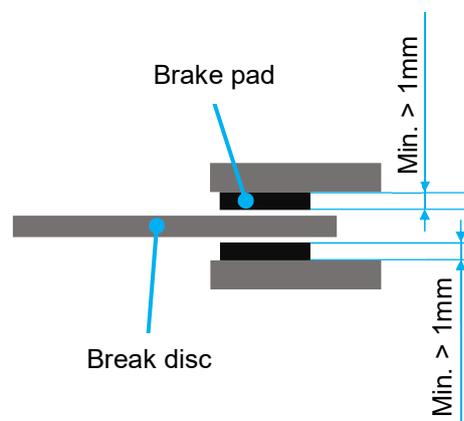
⚡ WARNING:

Care must be taken to ensure that the brake discs and pads are grease-free and clean, otherwise the braking effect is not guaranteed and accidents can occur!

If necessary, use brake cleaners for the removal of dirt.

If the brake pads have come into contact with oil, they must be changed!

13.3.2 CHECK THE BRAKE PADS



⚡ WARNING:

Worn brake discs reduce braking effect, which can result in accidents, injuries and damage to components.

Therefore, check the brake pad thickness regularly!
To do this, measure the strength of the brake pads on the front and rear wheels.

💡 NOTE:

Each braking process reduces the brake pad thickness in the area between the brake pads.

Wear limits of the brake pads (min. thickness)	
Minimum covering thickness	≥ 1 mm

If the values are below this value, the brake pads need to be changed.
Also check the two brake pads for damage and cracks.

⚡ WARNING:

If the brake discs are damaged, having cracks or deformations, one or both brake discs must be replaced!

⚡ WARNING:

Care must be taken to ensure that the brake discs are grease-free and clean, otherwise the braking effect is not guaranteed and accidents can occur!

13.3.3 REFILLING OR CHANGING BRAKE FLUID

⚡ WARNING:

Too low brake fluid level leads to a failure of the braking system!
If the brake fluid level of the rear brake falls under the MIN mark or if the front brake is less than half full of brake fluid, either the brake system is leaking or the brake pads are worn out!

If this is the case, make sure that no one can ride a motorcycle until the brake fluid is filled and the vehicle is repaired if necessary.

⚡ WARNING:

Too old brake fluid reduces the braking effect!
Therefore, it is imperative to change the brake fluid regularly according to the maintenance plan.



⚡ WARNING:

Care must be taken to ensure that the brake discs are grease-free and clean, otherwise the braking effect is not guaranteed and accidents can occur!



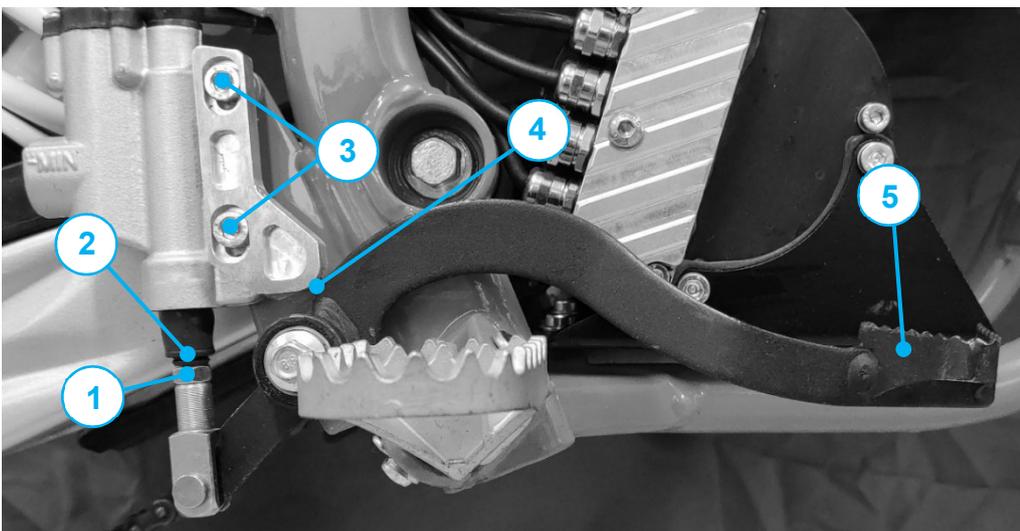
13.4 FOOT BRAKE LEVER

13.4.1 POSITION OF THE FOOT BRAKE LEVER

Check that the foot brake lever is in line with the footrest. This is the default position.

If this is not the case, adjust the position of the foot brake lever correctly.

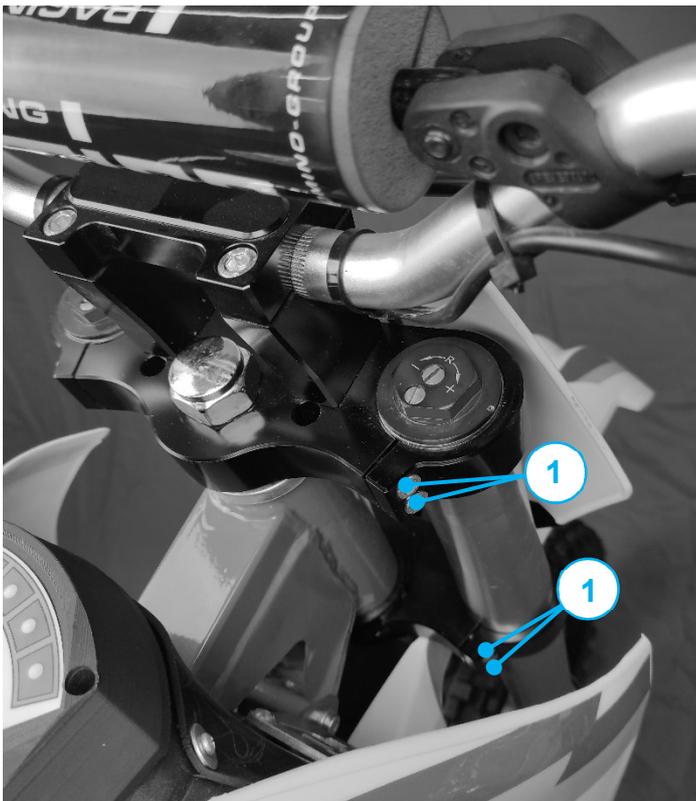
13.4.2 POSITION OF THE FOOT BRAKE LEVER



-
- ▷ Loosen the counter nut ①
 - ▷ Remove the bending splint
 - ▷ Remove the bolt
 - ▷ Use thread ② to adjust the position of the brake lever as it suits you.
The recommendation for this is to align it in a horizontal line to the footrest.
 - ▷ Then fix this position with the counter nut ① and install the bolt and Bending splint again.
 - ▷ Loosen the 2 screws ③
 - ▷ Slide the brake lever stop ④ downwards so that it can make contact with the foot brake lever ⑤.
 - ▷ Tighten the 2 screws ③ again.

13.5 FORK

13.5.1 ADJUST FORK HEIGHT



- ▷ Loosen the 4 screws ①
- ▷ You can now move the fork bars by up to 3 cm in the fork bridge to the desired position.

▷ Make sure that the fork legs are set to the same height.

▷ Tighten the 4 screws ① with a torque of 10Nm

NOTE:

The recommendation is to adjust the sides one after the other, as the second side remains fixed and so an unintentional slipping of the fork is prevented.

NOTE:

Tightening the clamping screws too tightly leads to poor response. Too little tightening can lead to a slip of the fork legs.

13.5.2 CHECK FORKS FOR LEAKAGE

If the submersible tubes of the fork have oil residue, it is likely that they are leaking.

This may be due to the fact that e.g. the sealing rings are dirty or damaged.



▷ First remove the fork guard

▷ Slide the dust cuffs down on both fork legs to ensure that they do not damage them.

NOTE:

The dust seals are used to prevent dust and coarse dirt from entering the inner fork pipes.

Over time, however, dirt may get behind the dust seal.
If this dirt is not removed, the oil seals behind can leak.

⚡ WARNING:

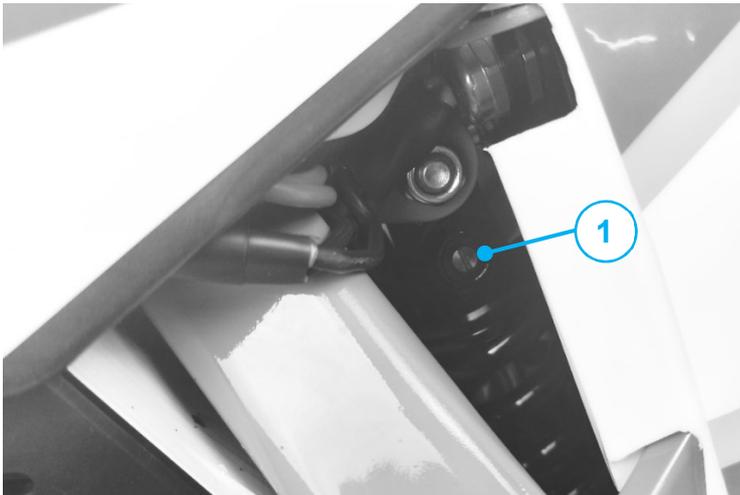
Oil or grease on the brake discs reduces braking effect. Therefore, always keep the brake discs oil- and grease-free and clean the brake discs with brake cleaner if necessary.
If the brake pads have come into contact with oil, they must be changed.

- ▷ Clean the dust seals and the inner fork tubes on both fork legs.
- ▷ Use a sealing ring cleaning tool, e.g. Seal Doctor.
- ▷ Slide the dust seal back into the installation position and press it well.
- ▷ If necessary, remove Oil on the fork
- ▷ Reinstall the fork guard

If this does not bring any improvement, please contact your dealer or HVR directly.

13.6 REAR DAMPER

13.6.1 SETTING THE DAMPERS



⚡ WARNING:

If the damper is disassembled improperly, parts of the damper can be shot out. Components can be damaged and injuries can be caused.

- ▷ Carefully rotate the adjustment screw clockwise until the last noticeable click.

This means that the tensile stage damping is high and the strut slowly springs out.

- ▷ Carefully turn back counterclockwise

This means that the tensile stage damping is low and the shock springs out quickly.

Damper adjustment	50.4 / 50.4 MINI	
	Counterclockwise clicks (open)	
	Shock absorber rebound	
Sport	2	
Normal	4	
Comfort	8	

Damper adjustment	50.4 PRO			
	Counterclockwise clicks (open)			
	Fork		Shock absorber	
	Rebound	Compression	Rebound	Compression
Sport	6	2	3	0.5 Turns
Normal	11	5	7	1 Turn
Comfort	18	9	11	1.5 Turns

Damper adjustment	60.4			
	Counterclockwise clicks (open)			
	Fork		Shock absorber	
	Rebound	Compression	Rebound	Compression
Sport	7	6	3	-
Normal	14	12	7	-
Comfort	20	19	11	-



13.7 SPOKES

13.7.1 CONTROL SPOKE TENSION



WARNING:

If spokes are too tight, they can cause damage to wheel.
If they are too loose, the wheel can become uncetered and further spokes can loosen.

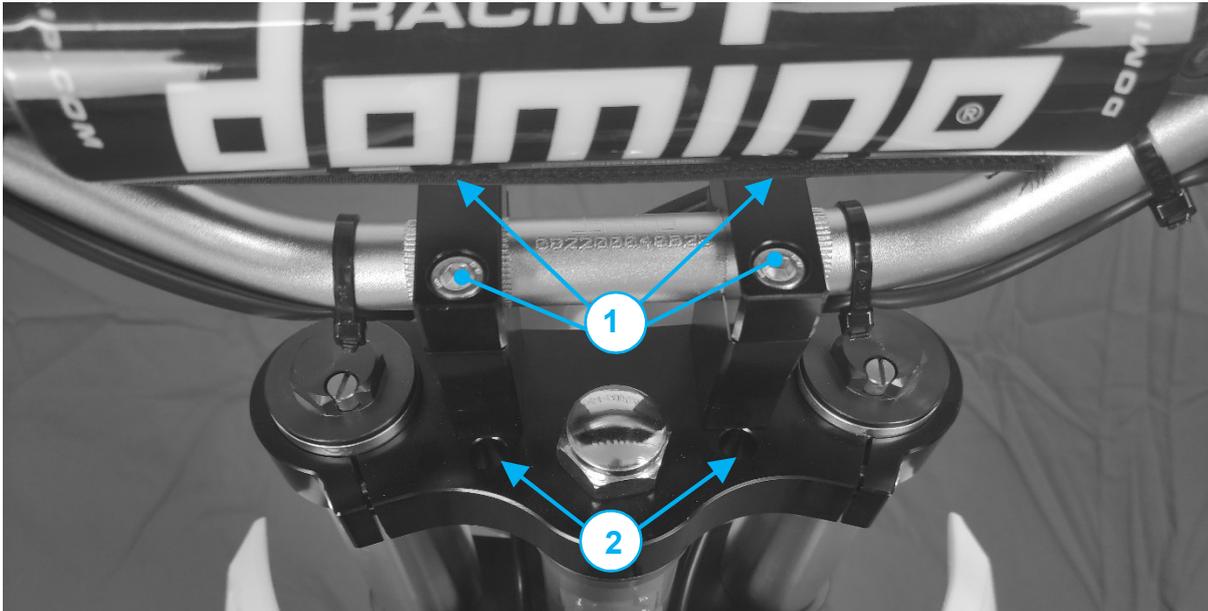
After the first 3 battery charges, check the spoke tension at regular intervals, especially on a new vehicle.

NOTE:

The spokes, if gently hit with a small screwdriver will play a light tone.
All spokes on the wheel should sound the same bright tone.
If the tone frequencies on the individual spokes differ, this indicates a different spoke tension.
If the spoke tension is different, this must be corrected.

13.8 HANDLEBAR

13.8.1 SETTING THE HANDLEBAR POSITION



SLOPE

- ▷ Loosen the 4 screws ①
- ▷ Adjust the slope of the handlebars as desired
- ▷ Fix the 4 screws ①

POSITION

The handlebar holder can be mounted on the fork bridge in two positions.

- ▷ Remove the 4 screws from the bottom of the fork bridge
- ▷ Bring the handlebars to the desired position ②
- ▷ Fix the 4 screws

14. SERVICE PLAN

14.1 DUTY WORKS

	Every 10 hours		
	Every hour		
Check the brake pads of the front brake	○	●	●
Check the brake pads of the rear brake	○	●	●
Check the brake discs	○	●	●
Check brake lines for damage and tightness	○	●	●
Check the brake fluid level of the rear brake	○	●	●
Check the play at the foot brake lever	○	●	●
Check the frame for damage or cracking		●	●
Check the swing arm for damage or cracking		●	●
Check the swing arm bearings		●	●
Check tire condition	○	●	●
Check tire air pressure	○	●	●
Check wheel bearings for play		●	●
Check wheel hubs for damage or cracking		●	●
Check the wheel centering	○	●	●
Check spoke tension	○	●	●
Check the chain, sprocket, chain pinion and chain guide	○	●	●
Check chain tension	○	●	●
Lubricate all moving parts (e.g: hand lever, chain, ...) and check for smoothness	○	●	●
Check the brake fluid level of the front brake	○	●	●
Check the play of the handbrake lever	○	●	●
Check steering head bearing play	○	●	●
Check cables for damage and kinks	○	●	●
Perform fork service			●
Perform shock absorber service			●
Check screws and nuts for proper tightness	○	●	●
Final inspection: Check the vehicle for operational safety and carry out a test drive	○	●	●

- one-time interval
- Periodic interval



14.2 RECOMMENDED WORK

Every 40 hours / 1x a year			
Every 10 hours			
Every hour			
Change the brake fluid of the front brake			•
Change the brake fluid of the rear brake			•
Lubricate the steering head bearings			•

15. TORQUE LIST

Label	50.4 / MINI / PRO		60.4	
	Screw	Torque [Nm]	Screw	Torque [Nm]
Wheel axle front	M12x1.25 L-210mm	50 Nm	M14x1.25 L-215mm	60 Nm
Wheel axle rear	M12x1.25 L-170mm	50 Nm	M12x1.25 L-185mm	50 Nm
Swing axle	M12x1.25 L-165mm	80 Nm	M12x1.25 L-175mm	80 Nm
Steering head nut SW 30	M22x1	50 Nm	M22x1	50 Nm
Steering head crown nut	M22x1	play-free setting by hand	M22x1	play-free setting by hand
Handlebar position fork bridge top	M10x1.5 L-40mm	40 Nm	M10x1.5 L-40mm	40 Nm
Shock absorber screw (top & bottom)	M10x1.5 L-40mm For: M8x1,25 L-55mm	45 Nm	M10x1.5 L-40mm	45 Nm
Handlebar clamp	M8x1.25 L-25mm	25 Nm	M8x1.25 L-25mm	25 Nm
Rear frame fastening (4x)	-	-	M8x1,25	25 Nm
Foot brake lever (with counter nut)	M8x1,25	25 Nm	M8x1,25	25 Nm
Chain guide frame underside	M8x1.25 L-30mm	10 Nm	M8x1.25 L-30mm	10 Nm
Rear sprocket	M8x1.25 L-20mm	25 Nm	M8x1.25 L-25mm	25 Nm
Fork bridge upper and lower clamps	M6x1 L-25mm	10 Nm	M6x1 L-25mm	10 Nm
Brake caliper fastening at the front	M6x1 L-35mm	10 Nm	M6x1 L-35mm	10 Nm



Brake caliper fastening rear	M6x1 L-16mm	10 Nm	M6x1 L-12mm	10 Nm
Cooling grill	-	-	M6x1 L-12mm	10 Nm
Side paneling at the front of the cooling grill	-	-	M6x1 L=30mm (Countersunk head)	8 Nm
Seat holding point front	M6x1 L-65mm	8 Nm	M6x1 L-65mm	8 Nm
Seat fastening at the rear	M6x1 L-20mm	3 Nm	M6x1 L-20mm	3 Nm
Brake disc rear wheel	M6x1 L-14mm	10 Nm	M6x1 L-14mm (Countersunk head)	10 Nm
Brake disc front wheel	M6x1 L-14mm	10 Nm	M8x1.25 L- 16mm	25 Nm
Chain guide at the top	M6x1 L-12mm	3 Nm	M6x1 L-12mm	3 Nm
Chain guide at the back	M5x0.75 L- 16mm	6 Nm	M5x0.75 L- 16mm	6 Nm
Fork protectors	M6x1 L-14mm	6 Nm	M6x1 L-14mm	6 Nm
Rear panelling on the side	-	-	M6x1 L-20mm	8 Nm
Battery fixing points frame (top & rear)	M6x1 L- 16mm	10 Nm	M6x1 L-16mm	10 Nm
Battery fixing points frame below	M6x1 L- 30mm	10 Nm	M6x1 L-30mm	10 Nm
Motor mounting frame (4x)	M6x1 L- 16mm	10 Nm	M6x1 L-16mm	10 Nm
Motor controller fixing rear frame	M6x1 L=12mm (vertical head)	10 Nm	M6x1 L=12mm (Countersunk head)	10 Nm
Sprocket cover	M6x1 L- 25mm	10 Nm	M6x1 L-25mm	10 Nm
Motor ventilation bolt	M6x1 SW10	5 Nm	M6x1 SW10	5 Nm
Screws motor housing / holding angle *	M6x1	10 Nm	M6x1	10 Nm



16. EU/EC DECLARATION

The

High Voltage Racing GmbH
Neustadterstr. 13a
D-91085 Weisendorf
Email: info@HVR-bikes.com

hereby declares as the manufacturer that the childrens motorcycles HVR 50.4 MINI / HVR 50.4 / HVR PRO and HVR 60.4 comply with the provisions of the relevant European Community harmonisation legislation applicable to these products.

The authorized person for the compilation of the technical documents within the meaning of the Machinery Directive is: Ms. Nina Deitermann, Managing Director High Voltage Racing GmbH.

