

User Manual: Power Vacc/ Power Vacc Pro





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Power Vacc and Power Vacc Pro User Manual

This user manual is part of the Power Vacc and Power Vacc Pro device and an important part of the safe usage concept.



- Read the user manual carefully and follow the instructions -

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1. About this User Manual

While reading the user manual you will see that it includes warning signs, to alert you to risks arising from incorrect usage of the product that could result in death, injuries or material damage. Always take careful note of these warnings! The warning signs are highlighted as shown on the right.



2. Transport and storage

Protect the product against external forces (e.g. impacts, shocks and knocks) at all times, including during transport.

Check the Power Vacc/ Power Vacc Pro for any transport damage before use.

Transport and/or store the Power Vacc/ Power Vacc Pro in its original packing.

Store the Power Vacc/ Power Vacc Pro so that it is protected from sunlight.

In case of storage for longer than 12 months, follow the steps in this user manual (see Troubleshooting chapter) to start-up the device.

To avoid deep discharge of the battery, it should be fully charged once every 6 months.

Do not store the batteries at temperatures lower than 5°C.

Never store the Power Vacc/ Power Vacc Pro in a wet or humid condition (e.g. directly after cleaning).

3. General safety advice for operating and cleaning

Direct contact between the vaccine and/or rinsing fluid and the eyes and/or respiratory tract of the operator can be harmful. In these cases, seek immediate medical advice and show the vaccine information sheet.

Use the Power Vacc/ Power Vacc Pro for injecting animals only.

Keep children out of the operating area.

⚠ Do not immerse the Power Vacc/ Power Vacc Pro in any liquid.

⚠ Do not autoclave the Power Vacc/ Power Vacc Pro.

Do not sterilize the Power Vacc/ Power Vacc Pro in an UV box, nor any other sterilization device (i.e. EO-sterilization or gamma radiation).

Do **not** point the **Power Vacc/ Power Vacc Pro** towards any part of your body or towards other people! In case of accidental injection of vaccine and/or rinsing fluid, seek immediate medical advice and show the vaccine information sheet.

Beware of the spike in the bottle holder. It is very sharp and may contain residues of the vaccine and/or rinsing fluid. In case of a spike wound, seek immediate medical advice and show the vaccine information sheet.

⚠ Wear safety goggles and a mask when using the Power Vacc/ Power Vacc Pro. Ensure goggles are clean for optimal vision.

Mear rubber gloves when cleaning the Power Vacc/ Power Vacc Pro.

Do not throw the battery into water. Protect the battery from water and humidity, which could cause it to leak and release hazardous substances.

⚠ Do not throw the battery into fire, nor heat the battery. It may explode and/or release hazardous substances.



⚠ Do not expose the battery to temperatures higher than 60°C. It may explode and/or release hazardous substances.

Only veterinary practitioners or operators / farmers instructed by an experienced Power Vacc/ Power Vacc Pro user are permitted to work with the Power Vacc/ Power Vacc Pro.

⚠ Dropping the device while it is loaded with liquid may cause an unintended release and irreparably damage the device.

To prevent leakage, reduce the pressure inside the bottles by piercing them with a sterile needle prior to mounting a bottle on the device. Hold the Power Vacc/ Power Vacc Pro upside down when mounting a new bottle.

When expelling residual vaccine or rinsing fluid from the device, always position the needle into a bottle. Never inject into the air.

Operating the Power Vacc/ Power Vacc Pro for a longer period of time may induce cramps in the operator's hands. Regular breaks are recommended.

4. General description and information

4.1 Description

Power-Vacc /Power-Vacc Pro provide an advanced solution for precise and efficient vaccine administration in veterinary medicine, including intradermal, subcutaneous, intramuscular, and nasal applications. The devices are robust, waterproof (IP66), enable quick injections, and offer comprehensive documentation via an app or an integrated display (Pro version only).

4.2 Packaging contents

Depending on the version of the device ordered, certain accessories may not be included in the delivery.

- Power Vacc/ Power Vacc Pro (1)
- Three Batteries (with safety caps) incl. Battery Charger and USB-Mini-cabel (2)
- Universal bottle collar Ø20mm (3)
- Universal bottle collar Ø30mm (4)
- Tubing adaptor (5) + Tubing (under the device)
- Basket (6)
- 250ml bottle
- Basket adapter

4.3 Operating requirements

Please read the user manual carefully before first use.

4.4 Target species

The Power-Vacc and Power-Vacc Pro are suitable for a wide range of animals, including livestock, pets, and wildlife. They are ideal for routine vaccinations, disease prevention campaigns, and individual treatments, offering versatility for intradermal, subcutaneous, intramuscular, and nasal applications.



4.5 Mode of action

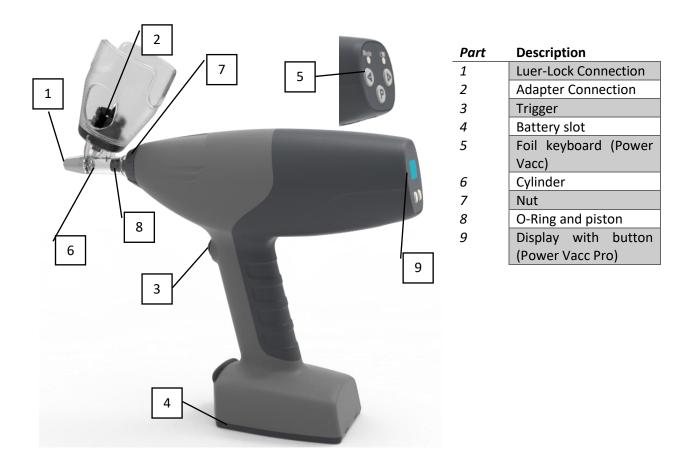
Power-Vacc and Power-Vacc Pro has a piston with o-ring (8) and cylinder (6) with a connection for bottles (2) equipped with a draw-off spike, on which bottles can be mounted with different adapters. The cylinder can be positioned in different direction by opening the nut (7) also it is exchangeable. Vaccination takes place through a needle when a needle is mounted to the Luer-Lock Connection (1).

The Power-Vacc has a Foil keyboard (5) with three buttons on the backside of the device which allows to change the volume of the injection or change the mode of the device.

The Power-Vacc Pro has a display (9) which can show several information or functions could be chosen. The two buttons underneath the screen (9) operate its display.

Power-Vacc and Power-Vacc Pro comes with three batteries and a battery charger (depending on your version ordered). Before use, insert the charged batteries into the battery slot (4). of the device.

Operation of the Power-Vacc and Power-Vacc Pro begins with inserting a bottle of vaccine into the bottle holder (2) and pushing the trigger (3) to activate the injector. This will start the pump and vaccine is automatically drawn out of the bottle. The fluid, which is present inside the cylinder (6), is pumped out of the tubes via the injection head.





5 Bottle connection / disconnection

Prior to inserting the battery, connect a bottle (vial) of vaccine or rinsing fluid (see chapter 9 "Device Cleaning") to the device by following these steps:



Depending on your needs use one of the supplied adapters Caution: The spike is very sharp as it has to puncture the bottle bungs of the vaccine bottles. Please avoid unintended contact with the tip of the spike.



Depending on the diameter and height of the bottle you can use a different collar to connect with the bottle as shown on the picture.



Pre-puncture the stopper of the vaccine bottle centrally with a sterile needle to avoid rubber particles being drawn into the spike of the vaccination device and eliminate the overpressure inside the bottle. Place the injector on a solid surface and push the bottle onto the spike using the pre-punctured hole.

CAUTION: Without pre-puncturing of the bottle stopper, rubber particles may be drawn into the device, leading to potential dysfunction by blocked valves and / or nozzle.



Connect the bottle to the device by screwing the collar onto the thread (clockwise) until it is tight. Please make sure to twist only the white collar, not the bottle itself. After completion of this step, check if the bottle sits tightly.



If using the tubing collar to connect a larger bottle via tubing, **prefill the tubing** (!) prior to attaching it to the tubing collar. Prefilling the tubing can help to prevent the formation of air bubbles in the system. The tubing adaptor for the bottle is not included in the Power Injector packaging.



When the tube starts to fill, kink the tube just before the end to prevent loss of vaccine. Then quickly connect the tubing to the adaptor.





Attach the Click-in Bottle Mount to the bottle mount spike and fixate it with the basket by screwing it to the bottle attachment.

Turn the injector back into an upright position. Insert the battery at the bottom of the handle. This step will activate the device (see next chapter).

To disconnect a bottle from the device, proceed in the reverse order. Always make sure to have the draw-off spike of the device pointing downwards when connecting or disconnecting a bottle. Otherwise, vaccine will be spilled over the device while a bottle is being connected to or disconnected from the bottle mount.



6 Device Start



Open the Battery slot

First push at the edge of the battery cover in the direction of the arrow and the lift it up as shown in the second picture.



Insert the batteries in the right direction (pay attention to + and -), Before inserting the batteries check them for mechanical damage. If any damage is obvious dispose of them properly. Make sure to use the correct battery model, Please use a 18650 Li-lon PCB protected rechargeable 3,6/3,7V Batteries with a min. capacity of 2600mAh min. continuous discharge current of 5,2A to make sure you reach the product specifications.



Close the battery slot with the cover properly.

First place the small nipple of the cover into the holes of the device (1) and then snap the cover into positon (2).

Make sure that the cover of the batteries is in the correct position to make sure you have a sealed device.



7 Description for the Power Vacc

If you have a Power-Vacc Pro you can proceed to Page 10



Button	Description	
1	Changing the Mode:	
2	Reducing the volume	
3	Increasing the volume	
4	Status of Mode	
5	Battery level	

Colours of Mode		Description	
Blue		Priming Mode:	
Green		Vaccination Mode	
Violet		Changing Volume Mode	
White	0	Rinsing Mode	
Red blinking		Motor overheat (let the	
		device cool down)	

Colours of	Description
Battery	
Red blinking	Battery empty
Red •	<20%
Orange •	<60%
green	>60%

7.1 Priming of the Power-Vacc



When the batteries are inserted correctly (right direction), the Mode on the Power-Vacc Foil will show a green LED. Make sure you have attached a bottle with injectable.

The device is now ready for use.



If you want to start to prime the device you can choose with the button P. The Mode will switch to the blue LED and after pressing the trigger the plunger will move to 20% of the volume for easier priming of the cylinder. Press again and the device will start to prime the device. Check the chamber if all the air is out of the cylinder.

To proceed to the vaccination mode press the P button again. The plunger will move to the preset volume setting.

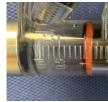
You could start now with vaccination.



7.2 Changing Volume of the Power-Vacc













Press the – or + button and the device will switch into the volume changing mode (violet).

Pressing – or + will change the volume in 0,05ml steps. When holding the button it will move in 0,1ml steps. (For the 5ml version the change of the volume will be always 0,1ml).

Please see on the left side some examples of set volumes for the 2ml version how to read the set volume.

0.50 ml

1.00 ml

The end of the plunger will indicate the set volume

For the 5ml version the principle is the same Please see the 1ml example for 5ml

When you are in the volume changing mode every click changes the volume also when the plunger is not moving. Recheck the correct volume adjustments after the volume change via scale or single use syringe.

Press the trigger and you will come to the vaccination mode

7.3 Activation of the acoustic signal



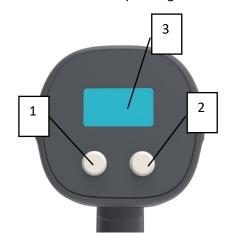
For activation of the acoustic signal press the P button and the + button simultaneous. Now after every vaccination there will be a short beep for confirmation.

For deactivation of this function press the P button and the + button simultaneous.



8 Description of the Power-Vacc Pro

If you have a Power-Vacc please go back to Page 8



Description			
Left Button			
Right button			
Display			



When the batteries are inserted correctly (right direction), the display Will show the HSW Logo and afterwards the home screen.

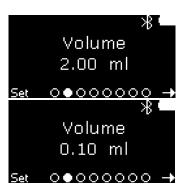
The home screen of the User Menu will show the most relevant information in the center of the display, e.g. day counter and currently set volume. Furthermore, the start display shows at the top edge, from left to right: vial volume indicator, acoustic signal, activated sensors, Bluetooth and battery level.

In the left corner you can activate the prime function of the device, please see chapter prime of the device.



To proceed to the menu pages push the right button. To get back to the home screen you must navigate through the menu pages by pushing the right button.

The dots at the bottom of the screen indicate the current menu page. On the first page of the user menu, the Day Counter is shown. To reset this day counter, push and hold the left display button for two (2) seconds.



On the second page, the volume can be adjusted. The currently set volume is shown in the center, to change the volume it is shown set on the lower left side.

Push the left display button to choose the desired volume. When the device is set to a 2ml version the steps of changing the volume are 0,05ml for the 5ml version it will be 0,1ml.

When the desired volume is set just press the trigger and the device will change the movement of the plunger.



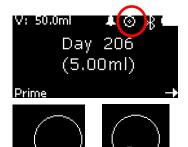


On the third page, the Vial Level Indicator can be controlled. This indicator will give an acoustic warning (via the beeper and in the display there will be a warning to check the vial) once you have used 80% of the vaccine inside the connected bottle. When this warning appears, you have 20% left inside the bottle that is mounted to the Power-Vacc Pro device. This allows for a better overview on when to change a bottle during the vaccination session. To activate the vial level indicator, choose the size of the bottle / canister you want to mount by pushing the left display button (0ml, 20-50ml (intervals of 5), 50-500ml (intervals of 50) and 500-5000ml (intervals of 500). All bottle sizes above 200ml ideally being connected via tubing.

For resetting the vial counter hold the device upside down and the position sensor will detect the change of the bottle

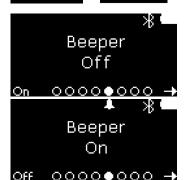
CAUTION: The vial level indicator is a simple counter that needs to be set up according to the bottle size mounted to the device. It counts backwards from the set volume to zero, the current counter reading is shown in the top center of the display.

On the fourth page, the Position Sensor can be controlled. Push the left display button to disable (Off) or enable (On) the position sensor. Recommended setting is "Position Sensor On". (Disabling is only recommended when using the tubing adaptor supplied with the device and having vaccine delivered via tubing.)



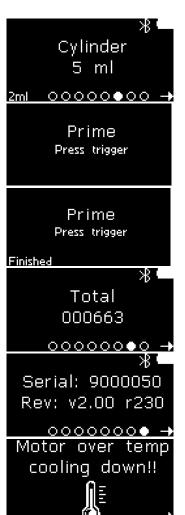
This sensor allows for continuous control of the correct holding position of the device (see picture on the left). Once the injection is done and before allowing liquid to be drawn into the device the position sensor will check if it is held upright in order to avoid drawing in air.

If the device is held in the correct angle (see picture on the left), which is indicated by the small circle being inside the big circle, liquid from the attached bottle will be drawn in.



On the fifth page, the acoustic signal can be controlled. Push the left display button to disable (Off) or enable (On) the acoustic signal which will confirm the injection.





On the sixth page, the volume of the mounted cylinder can be changed. Depending on the mounted cylinder choose 2ml or 5ml by pushing the left display button for min. (4) four seconds. After the change of the cylinder setting the device needs to do a reference drive. Press the trigger and the piston will move to the end position and then press the left display button to finish the reference drive.

The seventh page shows the Total Counter, which counts the total number of injections. This counter cannot be reset as it is a key indicator of the age of the device.

On the last page, the serial number (9000050) and the software version is shown. Push the right display button to return to the "Settings" page of the user menu. Push the right display button again to reach the home screen of the user menu.

If the device is used with in some special cases (a small needle, high volume 5ml and more than 500 injections in a row) it could be that the motor gets too hot. The system recognize this and let the motor cool down to a temperature where the motor will not get damaged.

9 To fit the needle





Attention:

For your safety: Leave the protective cover (only on disposable needles) on the needle until ready for use. Insert needle onto Luer Lock fitting and secure the needle clockwise. Disconnect the needle twisting the opposite way.



10 Injection of the injectable

Before starting the injection make sure you have connected a bottle of injectable and all air is removed from the cylinder before starting the injection.



When the cannula is inside the animal press the trigger for injection.

11 Prime-Mode

When the device is initialized and you choose the prime mode in the menu you will have an different option for the priming. This option helps you to get the air out "saving" some injectable.



To get air out of the cylinder when just a little bit is in the cylinder (see picture). Press the mode button (P) or prime with the left button to the priming mode.

If you hold the device that the needle facing to the air, the plunger will move only in small steps by clicking the trigger button. When all air is out hold the device in the normal position and press the mode button (P) or finish and you will come back to the vaccination mode.



When hold in that position the plunger will move to a position half of the cylinder.

Fast movements help to remove the air bubbles.

From that point the plunger will move forward and backward by pressing the trigger till all air is out of the cylinder.

When finished press (P) or the left button to finish the prime mode.



12 Turn off the device

The device will go to a standby mode after 1 hour of not using. To wake up the device just press the trigger button.

This standby mode still consumes some battery and we recommend to always make sure after usage to put out the batteries out of the device.



Open the battery slot and take out all batteries and the device will be

13 Positioning the cylinder

If you want to use the injector with a different positioning of the cylinder this will be possible with a small adjustment



Unscrew the nut counterclockwise while holding the cylinder.



Once loose, you can adjust the barrel position as required. To tighten, hold the barrel in position and tighten the barrel collars.



⚠ Important! When using the syringe as a bottle mount the spike and bottle must always face upwards. With a draw off set up, the tubing collar can be upward or downward facing.



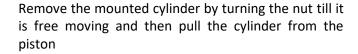
14 Changing cylinder and piston

If you want to change the volume of the device you can exchange the cylinder of your device. Please follow carefully the steps below.











Holder piston tip and turn it counterclockwise to release it



Take the piston and mount it clockwise onto the thread, don't mount it with a tool



Lubricate the O-ring and then mount the new cylinder



Make sure to software change in the menu. Your device is now set to a new volume. For the Power-Vacc you need to use the App to tell that it is a different cylinder. This is necessary for the reference of the motor.



15 Device Cleaning

15.1 Rinsing

The cleaning procedure mentioned hereafter should be carried out **directly** after **each** vaccination session.

The below mentioned cleaning procedure should be carried out after **each** vaccination session:



To clean the fluid path (Spike, inlet valve, cylinder, plunger and outlet valve), mount a bottle of Isopropanol or soap solution to the device and set the volume to the highest volume and do 10-20 injections to remove all residues by pressing the trigger.

For the Power-Vacc press the – and + button at the same time for 2 seconds for the rinsing mode. The device will set the volume to the highest possible and will rinse the device 10 times automatically or you can cancel the process by clicking the P button.

For the Power-Vacc Pro press both display buttons at the same time for 2 seconds for the cleaning mode. The device will set the volume to the highest possible and will rinse the device 10 times automatically or you can cancel the process by clicking the left button.



15.2 Cleaning of the device

A Prior to cleaning your device, **remove the battery (!)** at the bottom of the handle.

For the cleaning of the device, remove the bottle of clear demineralized water or PBS and the used bottle / tubing adapter.

⚠ The below mentioned cleaning procedure should be carried out after **each** vaccination session.

The device is **splash water resistant** according to IP protection class 66. **Do not immerse the device in any liquid.**

△ Don't use high pressure / steam cleaning devices to clean the device



When cylinder is mounted and the battery slot is closed you can clean the device under running water.



Please let the cylinder for cleaning mounted because without, the liquid could enter via the plunger opening and will destroy the electronic.



Dismount the cylinder from the device Suspend the cylinder including the valves and nozzles in a container of water and boil for up to 20 minutes.



15.3 Membrane for Cleaning of the device

Not peel the Membrane of the device, this will lead to a unsealed device

Water and wind are not let through, but air and moisture vapor are. This film is definitely breathable for inside the device to the outside.



16 Maintenance

Attention! If you detect that the syringe draws air after the described cleaning, it is possible that a valve is fixed in the front metal approach. The valve can be released by knocking slightly the front of the syringe against an object, e.g., the edge of a table, and afterwards rinsing the syringe with warm water.



Remove plastic barrel from the handle by turning the nut. Lubricate piston and inside the barrel with 100% pure oil, cold squeezed or equivalent vegetable oil.



Do not use mineral oil, silicone, WD-40, glycerine or alcohol. Petroleum based products harden the piston



17 Battery charging

Battery

Please use a 18650 Li-lon PCB protected rechargeable 3,6/3,7V Batteries with a min. capacity of 2600mAh max. continuous discharge current of min. 5,2A to make sure you reach the product specifications.

Recommendation:

Keeppower 18650 Akku 2600mAh (P1826J)

Alternative:

- Keeppower 18650 Akku 3400mAh (P1834C)
- Keeppower 18650 Akku 4000mAh (P1840C)
- Panasonic NCR18650 PF 2900 mAh PCB Protected
- XTAR 18650 3500 mAh protected (XT18650-3500)

The batteries of the Power Injector are rechargeable Lithium Ion (Li-Ion) batteries. The battery should be slotted into the opening in the base of the Power Injector:



The cover will hold the batteries in position.

- Use only appropriate batteries. The use of other batteries can lead to injuries and fire hazard.
- Do not expose the battery to mechanical shocks.
- Stop using the battery if it becomes abnormally hot, or if discoloration, deformation or abnormal conditions are detected during use, charge or storage.
- Replace the battery when its running time between charges becomes much shorter than usual.
- It is recommended that batteries are not recharged before falling below 50% loading capacity.
- Never store empty batteries as this could damage them and make them unusable.
- Never send/ ship defective batteries to any destination. Instead, please dispose of them correctly.

Charger

Charge the battery using only the charger supplied. Connect the battery to the charger and connect the charger to an USB electric socket. When connected correctly, the charging process will start automatically (see pictures).









- Check the charger regularly for damage, especially the connection cable and the housing. Do not use damaged battery chargers.
- Always grasp the plug, not the cable, when removing the mains plug from the socket.
- Faulty electrical installation or too high mains voltage can lead to electric shock. Only connect the battery charger to an easily accessible socket, so that you can quickly disconnect it from the power supply in the event of fault.
- If you charge the battery improperly, the battery, battery charger and the Power Injector may be damaged. Charge the battery at an ambient temperature between 0°C and 45°C.



LED lights red: Battery is empty and charging.

LED lights green: Battery is fully charged.

- The battery charger is not waterproof!
- Operate the battery charger indoors only!



18 **Troubleshooting**

Prior to sending a device for repair, always try the below mentioned steps in case of any technical issues with your device. In addition, the FAQ section in the HSW Connect App provides answers to the most commonly asked questions.

Problem	Cause	Solution
Air detection.	- Incorrect handling of the device - tilting the device directly after initiating the loading procedure of a new dose. - Generally deactivated position sensor (e.g. after use with tubing adapter). - Bottle change. - Air in the tube —only with tube application. - Cleaning — if the device is not cleaned thoroughly, the spring/valve can become dirty and cause air to enter the system through the front valve - Ventilation valve is not in the correct position. - O-Ring is used to long and air can enter the system via the sealing. - Storage over longer period of time (12+ months)	Make sure the bottle is screwed on correctly The black rubber sealing is in place when using the tube adapter or the thread adapter. Check if the ventiliation valve is in position Check the outlet valve and clean it with warm soapy water or use some vinegar. Check if the inlet valve is moving if this is glued to the valve seat release it with a very thin wire In general, try to point the device horizontally or slightly downwards when drawing in liquid, while pointing it upwards at a 45° angle when ejecting / rinsing liquid. If the device is pointing upwards when ejecting the liquid, removing the air will be easier as air will rise upwards. In addition, check the gasket on top of the cylinder as well as the valve below the injection head for contaminations and ensure they are clean and that spring and valve are positioned correctly.
It is not possible to unscrew the bottle adaptor from the thread of the device.	Vaccine has leaked into the thread and dried.	Try normal cleaning procedure. Do not try to loosen it with a tong / pipe wrench, because it would break the bottle holder off the device.

Dismantling 19

The Power Vacc and Power Vacc Pro device may only be dismantled by authorized service engineers. In case of unauthorized dismantling, the device will lose its warranty.



△ Do not open the Power Vacc and Power Vacc Pro device by yourself due to health and safety risks!



20 Technical Specifications

Power Vacc/ Power Vacc Pro

Model: 100

Weight: 850 g (incl. three battery cells)

Dimensions: 260 x 75 x 280 mm (with assembled battery)

Battery

Voltage: 3.7 VDC

Capacity: 2600mAh (9,62Wh)

Type: Lithium-Ion rechargeable Cell

Weight: 47 g

Charger

Protection Class: 2

Type: Lithium-Ion battery charger Input Voltage: 5VAC, 50-60 Hz

Input Current: max 3 A 1x 2A/2x 1.5 A/3x 1A

Compliance statements CE, RoHS & FCC certified

21 Disposal

The Power Vacc and Power Vacc Pro device, batteries, accessories and packaging should be sorted for environment-friendly recycling.

Do not dispose of power tools and batteries/rechargeable batteries into household waste!

Applicable in the EU





Old appliances must not be disposed of with household waste!

Batteries and rechargeable batteries must not be disposed of with household waste!

According to the European Guideline 2012/19/EU, power tools that are no longer usable, and according to the European Guideline 2006/66/EC, defective or used battery packs/batteries, must be collected separately and disposed of in an environmentally correct manner.

22 UKCA – Conformity marking

23 EC declaration