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your personal weightlifter  
for healthy lifting



# Tiller User Manual





## Safety Guidelines for Tiller

These safety guidelines should always accompany the Tiller.

- First read these safety instructions and the user manual completely and thoroughly and always follow the instructions.
- Contact the supplier directly with any questions on the safe use of the Tiller.
- Never use the Tiller for any application for which it was not designed.
- Before starting to use the Tiller, the operator needs to have received all available information on the safe use of the Tiller.
- The Tiller should never be used without proper guarding.
- Only an experienced operator should operate the Tiller.
- Check the proper working of all functions before using the Tiller. When in doubt, always contact an expert.
- Switching the Tiller on and off should always be done consciously.
- After every use, the Tiller should be switched off completely.
- The key to the Tiller should only be handled by authorized personnel.
- When using the Tiller, the operator should always have a clear view.
- Never overload the Tiller. Persons under 14 years of age are not permitted to use the Tiller.
- Use only original parts for the Tiller.
- Use only the supplied charger.
- Always keep the tire pressure between 1.75 bar minimum and 2.5 bar maximum.
- Use the Tiller only on flat surfaces.
- At all times during use, the Tiller has to be held firmly.
- When an anomaly occurs, such as vibrations or noise, switch the Tiller off immediately and contact the supplier.
- Repairs to the Tiller should only be done by an expert.
- The Tiller should be switched off completely during cleaning and maintenance.

## **Preface**

Congratulations on the purchase of the Tiller!

The Tiller is a machine that helps you lift weights that you can lift, but shouldn't. It prevents certain health problems and consequently work loss.

To safely work with the Tiller, it is necessary to get instruction and read this user manual thoroughly.

Keep the user manual accessible to all users at all times.

We wish you a long and pleasant use of the Tiller.

The Tiller company team

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## 1. Product information

Manufacturer: Tiller bv  
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The Netherlands  
Phone +31 (0) 15 – 310 7255  
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Product: Brand: Tiller  
Model: Original 09  
Type: Standard

### 1.1 Description

The patented Tiller is a hand truck for lifting and moving loads. Loads you could lift, but are not allowed to lift (23 kilograms and up, to a maximum of 75 kilograms). The Tiller prevents back problems and work loss. Loads can be moved as with an ordinary hand truck. If the load has to be lifted to a higher level, such as onto a workbench, you drive the hand truck up to the elevation and lift the load with the electrically driven hitch cylinder. When lifting, the wheels of the hand truck will instantly brake. When the load is at the correct height, drive the hand truck forward to the workbench with the brake-drive motor built into the brakes. The load is then placed on top. The machine can also be used to lower loads down from a higher level. For transportation of the Tiller, the Tiller can lift itself from the ground to the loading level of the transport vehicle. The Tiller comes standard with a universal loading tray suitable for most kinds of loads. The Tiller can be equipped with various special accessories for handling specific products. These accessories can be made-to-measure for specific situations by client request. Only the manufacturer's accessories may be used.



### **Caution!**

Before starting to work with the Tiller, you should thoroughly read the user manual. The machine may only be used by instructed personnel, as working with the machine can lead to hazardous situations for bystanders and laypersons. The minimum age for operators of the machine is 14 years.

## **1.2 Safety**

The machine can only be used for lifting and raising loads to a maximum weight of 75 kilograms. When a heavier load is lifted, an electric safety will immediately be activated. In the unlikely event that this safety does not work, the hitch cylinder is equipped with a mechanical friction clutch. The brake-drive motor is suitable for moving the hand truck with load up to the workbench or loading platform. The maximum sideways slope of the floor is circa 2%. The slope of the floor in the direction of the movement is maximum 15 degrees. If the angle of inclination is bigger, or if the wheels meet an obstacle, the brake-drive motor will be halted by an electrical safety. The brake function remains intact.

Always keep the Tiller well balanced during lifting. Keep the Tiller with load balanced, to avoid using much muscle power. Always place the load firm and well distributed on the loading tray, to prevent unwanted shifting or even loss of the load. When using the Tiller, supply a good and stable work environment and position of the operator. Never go near or touch turning or moving parts with hands or other body parts.

The machine can form a health hazard when:

- Safety instructions are not followed.
- The machine is not operated by instructed personnel.
- The machine is adapted or changed.
- The machine is used for other applications than listed in the description.
- The load is not placed well and secure.
- Body parts such as fingers, long hair, loose clothing and such are too close to the moving parts of the machine in operation.
- The operator can not fully occupy his or her position behind the Tiller.

Hazardous circumstances have to be avoided, such as:

- Working in a wet environment or on a wet or slippery surface. The surface needs to be clean and unspoiled by pieces of paper, plastics or other bits.
- Working in a space too small for maneuvering.
- Lifting loads unnecessarily.
- Driving or moving with lifted loads unnecessarily.
- Lifting and maneuvering near bystanders.
- Lifting persons.

If the machine does not function properly, or you do not sufficiently understand its functioning, contact your supplier and request adjustments or instructions.

The machine has a 12 month warranty from the date of purchase. A warranty request needs to be accompanied by a copy of the receipt and the serial number of the machine. Adaptations of the machine or failing to comply with the user manual leads to termination of the warranty.

### **1.3 Technical specifications**

Sound pressure:	<70 dB (A)
Maximum lifting capacity:	75 kg
Maximum lifting height:	1.10 m
Weight:	42 kg
Lift speed:	100 mm/s
Height:	1.55 m
Operational voltage:	24 V
Charging current:	0.9 A
Width:	0.52 m
Depth loading tray:	0.35 m
Vibrations:	< 2.5 m/s <sup>2</sup>
Battery NiMh:	3600 maH

### **1.4 Customer service**

You can order original parts from your supplier or distributor, stating the machine number and part number. Please contact your supplier or distributor with complaints, requests and defects.

## **2. Installation**

### **2.1 Transport requirements**

The machine is transported just like an ordinary hand truck. For transportation of the Tiller in a van, it should be fastened with proper means. Place the Tiller on a flat and dry surface at a central location in the workshop or storage space, so every user knows how to find it for lifting jobs. Limit the use of the Tiller outside during wet circumstances and store the machine in a dry place directly afterward.

### **2.2 Assembly requirements**

Your supplier should deliver the machine fully assembled. The charger should be placed at a central location in a non-humid working space near a 220 Volts wall outlet.

### **2.3 Connection requirements**

The charger needs to be connected to the Tiller using the charging connector. For first use, the batteries need to be charged continuously for 24 hours. After this, the machine is ready for use. After use, the machine needs to be connected to the charger again. When the batteries are charged, the charger will convert to trickle charging. Thus, the batteries can not be overcharged. For charging status, see the indicator on the charger.

The on/off switch of the Tiller needs to be switched on and off before and after every use to prevent unnecessary run-down of the batteries. The charger functions when the on/off button is in the off position.

Use only the original charger provided. Any other charger can damage the machine!

Take the key out of the ignition after use of the Tiller.

## **Caution!**

Opening of the housing of the driving electronics and batteries by the user is not permitted. Leave this to a professional.

## **3. Operation**

### **3.1 Operation**

The Tiller is ready for use after fully charging the batteries.

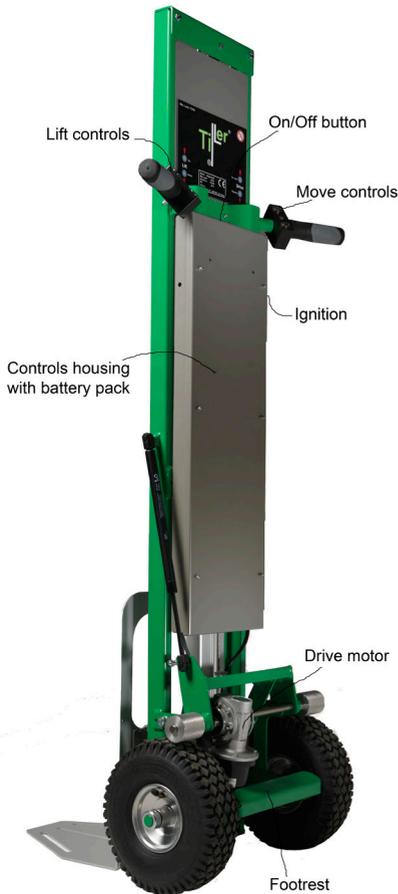
### **3.2 Operators**

Working with the Tiller does not require specific training. An experienced user or the supplier can instruct personnel on the operation of the machine. Operators need to have reached the minimum age of 14 years and should not have physical or other limitations that would affect working with the machine. For the instruction of larger groups of personnel, an operation course can be arranged by Tiller bv. Ask your supplier for more information and costs.

### **3.3 Functioning of the machine**

The Tiller is worked as any ordinary hand truck. Place a load on the loading tray and put a foot on the footrest, then bring the Tiller in a balanced position. Now push to drive the load up to the platform or elevation on which you wish to place the load, such as a workbench. Keep the Tiller with load balanced straight in front of the workbench or platform, at the smallest possible distance.

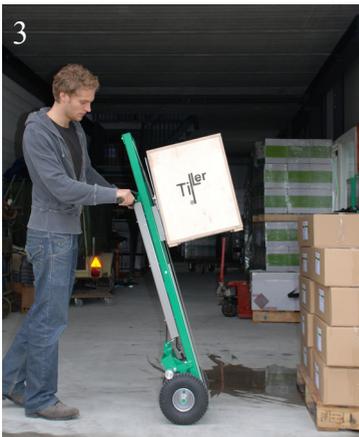
Push the “Up” button and the drive motor will block the wheels after a few centimeters of lifting. Keep the Tiller with load balanced during the lift, for zero or minimum stress on the arms.



When the desired height is reached, drive the Tiller towards the workbench with the “Forward” button, using the driving mechanism of the wheels until the Tiller is right in front of the workbench. Then move the Tiller with load forwards with the arms, moving the loading tray with the load above the workbench. If necessary, lower the load on to the workbench using the “Down” button. As soon as the loading tray of the Tiller rests on the workbench and is completely vertical, you can move the load off the loading tray by hand.

With space between the load and the workbench (for example by using a pallet board) you do not need to push the load off the loading tray. Drive the Tiller away from the workbench using the “Reverse” button until you have enough space to lower the loading tray. Lower the loading tray to the lowest level using the “Down” button, after which the blocking of the wheels is released by the drive motor. Now the Tiller can be moved again by manual force like an ordinary hand truck.

When loads have to be removed from a workbench or elevation, perform these actions in reverse order. Drive to the workbench and lift to the correct height. Then drive the Tiller up to the workbench until the loading tray is above the workbench. If necessary, lower the loading tray unto the workbench using the “Down” button. Place the load on it and lift several centimeters using the “Lift” button. Move the Tiller towards yourself with your arms, until the Tiller and load are balanced. Drive the Tiller with load backwards with the drive motor until you have enough space to lower the load. Lower the load while keeping the Tiller with load balanced, until the load is at the lowest position. Now the drive motor will release the wheels. Then you can move the Tiller with load as with an ordinary hand truck.



## **Caution!**

Ensure that the load on the workbench which is to be lifted down does not exceed the weight limit of 75 kilograms. If the load exceeds this weight, a hazardous situation may occur which should be prevented at all times.

Ensure that the Tiller with load stays balanced during lifting. Do not let the force on your arms become too much. When you keep the Tiller balanced, the Tiller does the work for you and you work safely!

Under no circumstances let go of the machine, and always keep both hands on the steering grips or handle to avoid uncontrolled movement of the machine.

## **3.4 Specials**

Special loading trays are available for easily lifting and moving loads of unregular shapes. One example is the loading tray on which your Tiller is delivered. Your supplier can provide additional trays.

## **3.5 After Use**

### **3.5.1 After use**

After finishing the job, the procedure underneath needs to be followed:

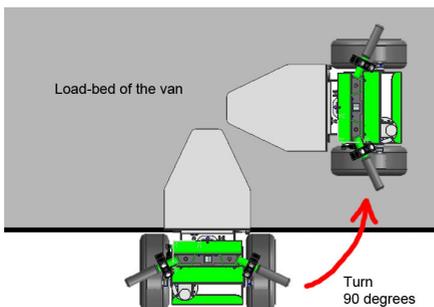
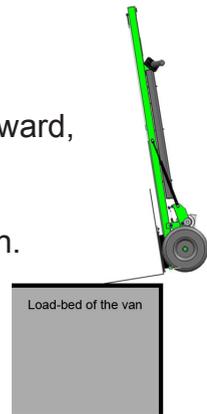
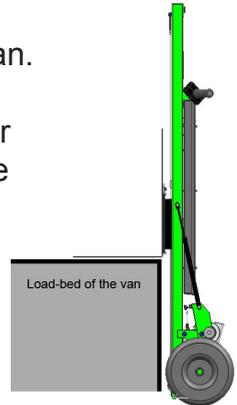
1. Move the Tiller to the central place in the workspace near the charger.
2. Bring the loading tray into the lowest position and rest the
3. Tiller on it.
4. Put the ON/OFF button to OFF and plug the charger into the housing of the electronics.
5. Remove the key from the ignition.

The Tiller will be charged and ready for its next use.

### 3.5.2 Storing in the van

When the Tiller is transported in the van, follow this procedure:

1. Drive the Tiller to the door opening of the van.
2. Lift the loading tray to the level of the floor or load-bed of the van. Drive the Tiller up to the load-bed.
3. Rest the Tiller loading tray on the load-bed and firmly keep the Tiller upright.
4. Press the “Down” button so the Tiller lifts itself. (Note that the buttons now work the other way around from the indicated up/down.)
5. As soon as the bottom of the Tiller is at load-bed level, push the Tiller slightly forward, so it rests on the tip of the loading tray.
6. Now you can swivel the Tiller into the van.



This takes some practice and is not without risk.

## **Caution!**

When the Tiller is not kept upright during lifting of the Tiller itself, but tilting too far outside, the Tiller loading tray may slip off the floor of the van and fall down.

Keep the Tiller firmly upright during this procedure and always wear safety boots!

After placing the Tiller in its resting position in the van, secure it down tightly. Use proper means for this, such as bungee cords or clamps, to prevent uncontrollable movement of the Tiller during transport. In case the Tiller has to be charged during transportation, connect the supplied charger to the Tiller with the charge plug. The charger has to be connected to a 12V/220V converter connected to the vehicle's battery, with sufficient capacity and switched on as soon as the motor runs. 12V and 24V chargers are available for order with your supplier.

### **3.6 Emergency stop**

In case of sudden movement of the Tiller or load, immediately release the control buttons and maintain a firm hold on the Tiller. Examine the cause of the sudden movement and treat the problem accordingly.

## **Caution!**

Never put your hands inside the Tiller mechanism, even to solve a problem. Always try to achieve the resting position with the loading tray in the lowest position and remove the key from the ignition before addressing any problems.

### 3.7 Solving problems

Most common problem	Solution
Machine does not work after it is switched on.	Battery is empty. Charge battery and turn off ON/OFF switch after use.
Machine does not lift sufficiently.	Battery is mostly empty. Charge battery.
Drive pulleys slip on the wheels.	<p>Only use the machine on dry surfaces.</p> <p>Check the pressure of the gas spring and replace if necessary.</p> <p>Wheels or drive pulleys are soiled. Remove irregularities.</p>
Machine shakes while lifting or lowering.	<ul style="list-style-type: none"> <li>- Check hoisting cables and pulley discs and replace if necessary. Lubricate conductor track with a small amount of thick grease.</li> <li>- Too much dirt on the conductor track of the main frame. Clean conductor track and lubricate with a small amount of thick grease.</li> <li>- Replace conductor blocks if necessary.</li> <li>- For use in a clean environment, teflon grease is recommended.</li> </ul>
Lifting halts. Overload LED (left) lights up.	Too heavy load on loading tray. Reduce load (max. 75 kg).

Driving halts. Overload LED (right) lights up.	Too steep inclination for drive motor (e.g. curb). Use a board (e.g. a pallet board against the curb).
Machine moves heavily.	<ul style="list-style-type: none"><li>- Put pressure on tires (1.75-2.5 bar).</li><li>- Wheel bearings are dry. Lubricate with new grease.</li><li>- Irregularities around the wheels. Remove irregularities.</li></ul>

## **4. Maintenance**

### **4.1 Daily maintenance**

The machine has to be connected to the charger when not in use, daily. This keeps the batteries in optimum condition for smooth performance. Remove irregularities from the machine during and after use. Regularly clean with compressed air when used in a dusty environment. Preferably not with water or high-pressure spray. This can damage electrical components and other parts of the machine.

### **4.2 Maintenance and repairs**

Contact your supplier for repairs. He can supply and build in original replacement parts. The supplier also knows the settings and associated safety risks.

The machine has to be inspected and serviced, preferably by your supplier, at least once a year.

Getting a service contract assures smooth performance. Contact your supplier for a service contract.

## **5. Accessories**

- Charger for in the car, 12V or 24V
- Various loading trays
- Pallet boards 400x600mm

Original replacement parts can be obtained from your supplier.

## **Appendix**

Declaration of agreement















