

ECO **WEEDKILLER**

Manual

This manual has been translated from the original Finnish manual

For models PRO3 SP and PRO6 SP

v 1.3

EWK Finland Oy
Venakontie 4, 74130 Iisalmi
Business ID: FI31531998

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Declaration of Conformity

Manufacturer
EWK Finland Oy
Venakontie 4
74130 Iisalmi
Finland

Hereby declares,

That the product: Hot water weed controlling machine **ECO WEEDKILLER**

Model: **PRO3 SP and PRO6 SP**

Serial number: 14000 →

Is manufactured using good engineering practice and complies with the following directives:

EMC 2004/108/EC
LVD 2006/95/EC
PED 97/23/EC § 3.3

The Person Responsible of the Technical File:

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Mechanical Designer
Venakontie 4, 74130 Iisalmi

Place and date: Iisalmi, Finland, 12.8.2020

Signature: _____



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INTRODUCTION

This manual contains information for the user of the hot water weed controlling machine ECO WEEDKILLER, for models PRO SP-series. In the following pages we intend to give clear instructions on how to operate and maintain the product correctly and safely.

1. Safety instructions

These safety instructions are a summary of the rules which are to be followed whenever working with or maintaining the ECO WEEDKILLER. In addition to the instructions of this manual, all applicable and effective laws and regulations must be followed!

Please read and apply the following instructions:

- Use the ECO WEEDKILLER only for its designed purpose.
- Follow the instructions given in this manual while working.
- Make sure every user has familiarized themselves with this manual before using the product.
- Always unplug the power cable when servicing or refilling it.
- Never aim the water jet towards people, animals, electrical equipment, or other delicate surfaces.
- Do not insert an arm or any other body part or foreign objects into the machine or in front of the water jet.
- Do not operate with faulty device.
- Do not operate the machine unless guards in place.
- When working with the machine, wear proper protective gear, e.g. gloves to protect yourself from spilling hot water or warm surfaces.
- Do not loosen any hose connections when the machine is running or pressurized, excluding the quick connector in the washer gun (optional).

In addition, the user must notify the following aspects concerning transportation and lifting of the machine:

- When lifting the device, use only the lifting openings under the device. Make sure the lifting machine is suitable for lifting.
- During the transportation the device must be properly fastened from the fixing points.

Do not modify the product without consulting the manufacturer first! Any unapproved changes may lead to unsafe situations and to expiration of warranty.

2. Product information and safety devices

2.1. Product information

Eco Weedkiller SP-series is designed to be used as hot water weed controlling machine.

The weed controlling is accomplished with the hot water generated by the machine. The machine heats the water above the boiling point using electricity. Usual applications are parks, playgrounds, gardens, and other places where weed controlling is required.

The device is designed for outdoor use only. It is transportable with a van, a pickup truck, a trailer, a truck, or other suitable transportation vehicle.

Before transportation of the device, make sure the vehicle is suitable for transporting this machine. The device must be fastened properly during transportation and when working. Before lifting the device, see chapter 1. Safety.

2.2. Safety devices

Eco Weedkiller has been equipped with different safety devices, which improve safety. Do not adjust, alter, or remove any of them without consulting the manufacturer first or if it is not instructed in this manual.

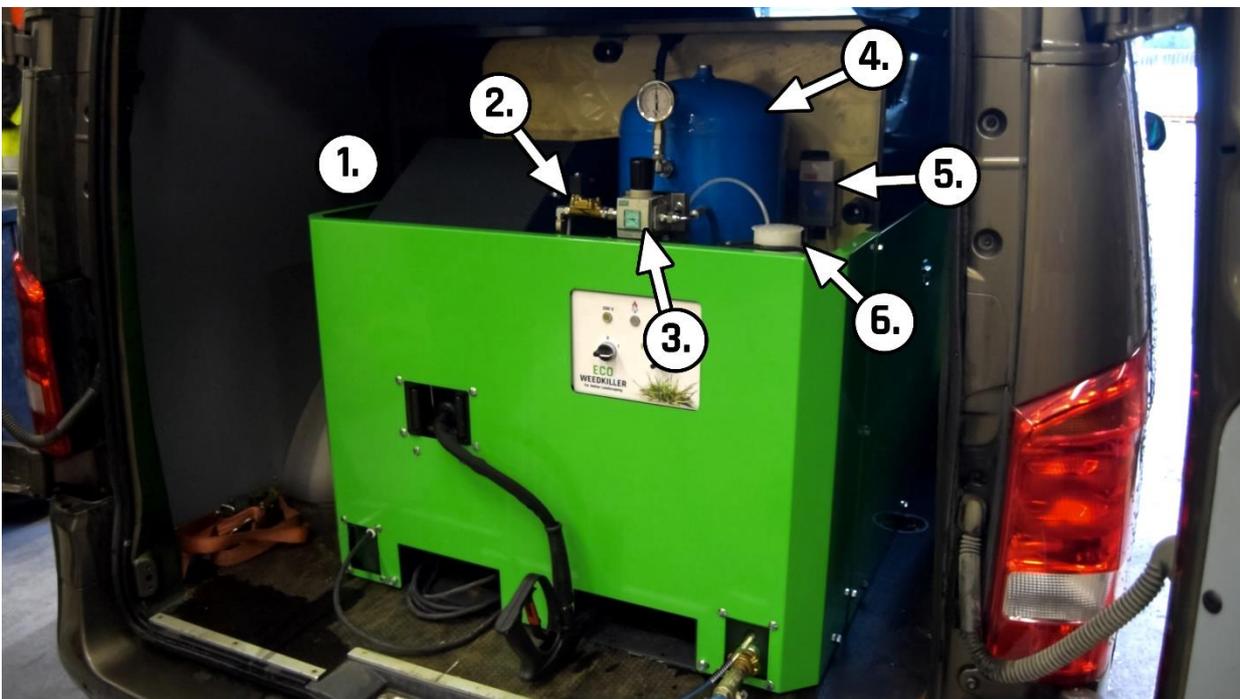
- Safety valves: prevents the pressure from increasing over max pressure limit.
- Water level switch: closes the filling valve when tank is full, prevents from overfilling. Prevents the heating element working when there is not enough water.
- Thermostat: Prevents the temperature of water rising above the set limit.
- Non-return valves: Prevents the water / pressurized air from leaking out of the tanks.
- Guards/cover plates: prevents direct contact hot surfaces.

In addition, treatment lances are equipped with insulation layers, which prevent direct contact with hot surfaces.



Picture 1

- | | |
|-----------------------------|-------------------------------|
| 1: Control panel | 2: Automatic hose reel & hose |
| 3: Compressed air connector | 4: Power cable 230/400V |
| 5: Water inlet connector | |



Picture 2

- | | |
|--|---------------------------------------|
| 1: Hose reel inside the insulation box | 2: Magnetic valve for pressurized air |
| 3: Regulator | 4: Pressurized air tank |
| 5: Descaling pump (option) | 6: Descaling liquid tank (option) |



Picture 3

1: Power 230/400V indicator light. This light is on when 230/400V power cable is plugged in. Battery 12V is recharged when 230/400V cable is connected.

2: Heating indicator light:

- RED: Heating is on
- GREEN: Heating is ready, device ready for work

3: Filling level indicator light. Shows different filling levels:

- 3.3 RED: Water level LOW.
- 3.2 RED: Heating element doesn't work, about ½ full (MID).
- 3.1 GREEN: Water tank is full. Filling valve closes automatically (FULL)

4: Main switch ON/OFF.

5: ECO MODE. Used while working. When selected, pressurized air is released into the water tank through the regulator.

6: HEATING MODE. Used for heating the water. 230/400V power cable must be plugged in and water level must be above MID limit for heating to work.

7: FILLING MODE. Used for filling the water tank. When water level is below HIGH level, filling valve opens automatically when FILLING MODE is selected. When water tank is full (water level FULL), filling valve closes automatically.

3. Operation

Do not adjust any components without the approval of the manufacturer or against the instructions given in this manual. This may lead to failed results on weed controlling.

Before using the device, check the following:

- The condition of hoses and connections – no leaks anywhere.
- The condition of power cable. If damage is visible, **DO NOT PLUG IN!**
- The device has been set on a solid surface and/or attached properly.
- Cover plates are in place.

The operation of the device can be divided into three different phases:

1. Filling the water and compressed air tanks
2. Heating
3. Working

3.1. Phase 1: Filling

The device has two tanks that needs to be filled: water tank and compressed air tank.

With SP-series machines, it is recommended to use clean water from water mains. Because the machine heats water using electricity, **heating time is reduced if hot/warm water is used to fill the water tank.**

1. To fill the tank with water, connect filling hose from water main to water inlet point using suitable connector.
2. Turn the **MAIN SWITCH ON** and choose **FILLING MODE** from control panel.
3. Open the filling main so that the water starts running into the water tank. The device is equipped with automatically opening/closing filling valve. **When water tank is full**, valve closes automatically. **When water level is below full level**, the filling valve is open. A non-return valve prevents the water from flowing out of the machine if FILLING MODE is used when the water tank is not completely full.

When water level rises, the filling level light switches color as following:

RED (LOW): Low water level.

RED (MID): Water level is about ½” full.

GREEN: Water tank is full. Filling valve closes automatically.

4. When indicator light is **GREEN**, water tank is full and water filling valve is closed. Remove the filling hose. Now the water filling phase is completed.

SP-series uses water steam and compressed air to produce required water flow. The steam from heated water is the main power source, but compressed air is mixed into the steam to ensure the correct water flow rate.

1. To fill the compressed air tank, connect the compressed air inlet hose to the connector.
2. Compressed air starts to flow into the tank when compressed air supply is opened.
3. A pressure gauge next to the tank shows the pressure level.
NOTE! MAX PRESSURE 10 BAR
4. When tank is full, remove the compressed air inlet hose.

Now the filling phase is completed.

3.2. Phase 2: Heating the water

When water tank is full of water, heating can be done. 230V /400V power cable needs min. 16A fuse.

The device is equipped with 230V / 400V adapter cable. By using that adapter cable, the device can be heated with 230V 16A socket.

Note! If heated with 230V adapter cable, device uses only 3,3 kW of power. Heating time is much longer!

To start the heating phase, follow these instructions:

1. Turn the **MAIN SWITCH ON** and plug in the power cable:
2. Select **HEATING MODE** from control panel.

Now the heating elements starts to heat up the water. Water heating light switches color as following:

RED: Heating is on.

GREEN: Heating is ready – Device is ready to work.

Heating element is thermostat controlled. When the temperature of the water reaches the set limit, thermostat cuts off the heating. Thermostat keeps the water in right temperature by switching the heating on and off over long periods of time.

3. When water heating light is **GREEN**, the device is ready to work. Unplug the power cable and turn the **MAIN SWITCH OFF**.

There is a 12V battery and a battery recharger inside the machine. While power cable is plugged in, the battery is recharged.

3.3. Working

Weed controlling is done using boiling hot water. Preferred working pace is 2-3 green square meters per minute, depending on the growth.

NOTE! THE DEVICE DOES NOT SEPARATE THE WEEDS FROM OTHER PLANTS. USER MUST SELECT WHICH PLANTS ARE TREATED. THE PLANTS THAT ARE SPRAYED WITH HOT WATER WILL BE DAMAGED.

Also, the hot hose can cause some damage to plants if the hose is still for long periods of time.

To control weeds with the machine, follow these instructions:

1. Turn the **MAIN SWITCH ON** and select **ECO MODE** from control panel.
2. Draw out the hose and press the trigger gun. Water starts to flow out of the nozzle.

Keep the water flowing until you hear a sizzling sound coming from the nozzle. That sizzling sound is a best indicator for user to make sure the water temperature is hot enough.

NOTE! When the hose reel and the hose are cold, the time required to reach the optimal temperature may be longer than when the hose is hot.

TIP! After heating is done and, run some water through the hose so that there is hot water in the hose. That hot water warms up the hose and hose reel making it faster to reach the sizzling hot water when reaching the working location.

NOTE! Depending on the outside temperature, the hot water coming out of the nozzle may form a lot of steam and the nozzle may make a buzzing sound. This is due to the high water temperature and is perfectly normal.

After work is done, turn the **MAIN SWITCH OFF** and roll the hose in.

3.4. Descaling

The device can be equipped with a descaling pump (optional) to apply descaling liquid to system. Descaling liquid prevents scale buildups from occurring. Descaling liquid should be applied to the system whenever working with hard water.

The descaling pump (picture 2, number 5) works automatically when water is running to the tank in filling mode. Pump applies the descaling liquid from the container (picture 2, number 6) to the water tank.

The rate of delivery can be adjusting by turning the adjusting knob found under the cover of the pump. The rate of delivery varies from 1,5 dl/hour (left position) to 45 dl/hour (right position). It is advised to keep the rate of delivery low, between left and center position, to not overdosing the descaling liquid in vain. The optimal amount varies from $\approx 0,1$ to 3,5 dl / hour, depending on the water hardness (1 to 25 °dH).

3.5. Compressor

A 12V compressor is available for the SP series, which automatically maintains the working pressure at a high enough level to achieve successful work. In the PRO 6SP series, a compressor is standard, and in the PRO 3SP series it is an accessory.

The compressor uses the battery of the device and is ready for operation when the main power is on and ECO mode is selected. When the compressed air tank pressure drops below the low limit, the compressor starts automatically, filling the compressed air tank until the lower limit is exceeded. When work is resumed and the lower limit of the compressed air tank is exceeded, the compressor restarts automatically, maintaining the required working pressure.

Note! The compressor is only intended to maintain the pressure level. It is recommended to fill the compressed air tank of the device with a larger compressor / compressed air source while filling the water tank so that the maintenance compressor of the device is not overloaded.

4. Service and maintenance

Before servicing the device must be lowered into a solid, flat ground, power cable unplugged the main switch turned OFF. **DO NOT SERVICE OR MAINTAIN THE DEVICE WHEN POWER IS ON OR WHEN THE DEVICE IS HOT!**

The service must be done by a qualified service person.

Daily maintenance:

- Check the hoses and power cable for any damage. Change damaged parts immediately.
- Check the device visually for any leakages. If any leakages are visible, fix the problem or contact the manufacturer or the seller

Note! The device may have boiling hot water inside. Do not maintain or service the device while its hot!

5. Long time storage

The machine must be stored in a dry and warm place. If that is not possible, the system must be completely emptied from water (hoses, water tank, hose reels etc.). It is recommended to empty the system from water for long time storage periods.

Do these steps before storing the device for longer periods of time:

- Clean the machine properly.
- Discharge battery cables.

- Check the condition of high-pressure hoses and replace if necessary.
- **Empty the device from water. Make sure that the device has cooled down before this:**
 - Fill the compressed air tank.
 - Secure the trigger gun into open position using a cable tie, a belt etc.
 - Turn **MAIN SWITCH ON** and select **ECO MODE**
 - Now compressed air will run through the system emptying it from water. Keep the trigger gun pressed until no more water is coming from the hose. If compressed air runs out, re-fill the air tank.

6. Spare parts and technical support

For spare parts, contact the manufacturer or your local Eco Weedkiller dealer.

Manufacturer:

EWK Finland Oy

Venakontie 4, 74130 Iisalmi, Finland

Sales: +358 50 4900085

Spare parts, technical support: +358 50 5710889 / janne@ecoweedkiller.com
+358 50 3313999

7. Troubleshooting

Fault	Possible cause	Solution
Water isn't getting hot.	Heating element is not working.	Make sure the power cable is plugged (230V/400V), MAIN SWITCH is on and HEATING MODE is selected.
		Make sure power supply works (no fuse blown). Power supply needs to be 16A.
		Make sure there is enough water in the water tank. If red light is on, heater doesn't work. Add water until tank is full.
Outcoming water is too cold / no sizzling sound.	Water in water tank is too cold.	Make sure heating light is GREEN before going to work. Then the device is ready for work.
		Water in the tank too cold, re-heat it. Make sure water level is above LOW WATER level so that the heating element works. Insulation should keep the water in working temperature up to 8 h.

Water output is low / water tank doesn't empty.	Water is not hot enough, device not ready for use.	Make sure heating light is GREEN before going to work. Then the device is ready for work.
	Wrong MODE selected	Make sure ECO MODE is selected while working.
	Too low pressure.	Adjusts the working pressure from REGULATOR. Pressure range should be 2-2,5 bar. Max 3 bar.
	Leak in a system.	Check for any leaks. If a leak is found, repair it or contact your local dealer or technical support for more info.
	Too low pressure in pressure air tank.	Fill the pressure air tank. Max. Pressure 10 bar.
No power in control box	Faulty battery / battery recharger	Check if the battery (12V) is good or recharger is working. Contact your local dealer or technical support for more info.

EWK FINLAND OY			
www.ecoweedkiller.com			
Hot water weed controlling machine			
Product	Model	Serial Number	
Eco Weedkiller	Pro 3SP	XXXXX	
Weight		Production Date	
MIN 310 kg / MAX 610 kg		XX / XXXX	
Max working pressure	Voltage	IP-classification	
3 bar	230 V / 400 V ~ 50 Hz	IP44	
Manufacturer		Rated Power	
EWK Finland Oy		230 V / 16 A / 3,3 kW	
Venakontie 4, 74130 Iisalmi, Finland		400 V / 16 A / 10 kW	

Figure 4. CE-sticker example (Pro3 SP)

8. Technical data

Model	PRO 3SP	PRO 6SP
Power	3,3 kW / 10 kW*	10 kW
Voltage	230 V / 400 V - 50 Hz / 12 V	400 V - 50 Hz / 12 V
Water flow	ca. 6 l/min (+100°C)	
Automatic hose reel	20 m	
Max. operating pressure	3 bar	
Tank size	300 l	600 l
Compressed air tank	50 l	
Max. compressed air pressure	10 bar	
Weight (empty)	310 kg	460 kg
Weight (full)	610 kg	1060 kg
Dimensions (L x W x H)	125 x 100 x 105 cm	190 x 100 x 105 cm
Descaling tank **	2 l	
Delivery rate for descaling pump **	From 2,5 ml / min to 75 ml/min	
Max temperature of water	+109°C	
IP-classification	IP44	

* Depends on which cable is used: 230V or 400V

** Option