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## USER MANUAL IN ORIGINAL



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## SAFETY INSTRUCTIONS

To reduce the risk of serious injury or death to yourself or others read and understand the Safety and operating instruction before installing, operating, repairing, maintaining, or changing accessories on the machine.

Post this Safety and operating instruction at work locations, provide copies to employees, and make sure that everyone reads the Safety and operating instruction before operating or servicing the machine.

In addition, the operator or the operator's employer must assess the specific risks that maybe present as a result of each use of the machine.

Additional instructionst for the engine can be found in the manufacturer's engine manual.

### Personal precautions and qualifications

*Only qualified and trained persons may operate or maintain the machine. They must be physically able to handle the bulk, weight, and power of the machine. Always use your common sense and good judgement.*

### Personal protective equipment

*Always use approved protective equipment. Operators and all other persons in the working area must wear protective equipment, including at a minimum:*

- Protective helmet
- Hearing protection
- Impact resistant eye protection with side protection
- Respiratory protection when appropriate
- Protective gloves
- Proper protective boots
- Appropriate work overall or similar clothing (not loose-fitting) that covers your arms and legs.

### Drugs, alcohol or medication

*Drugs, alcohol or medication may impair your judgment and powers of concentration. Poor reactions and incorrect assessments can lead to severe accidents or death.*

Never use the machine when you are tired or under the influence of drugs, alcohol or medication.

No person who is under the influence of drugs, alcohol or medication may operate the machine.

## OPERATION, PRECAUTIONS

### DANGER Explosion hazard

*If a warm machine or exhaust pipe comes into contact with explosives, an explosion could occur. During operating with certain materials, sparks and ignition can occur. Explosions will lead to severe injuries or death.*

Never operate the machine in any explosive environment.

Never use the machine near flammable materials, fumes or dust.

Make sure that there are no undetected sources of gas or explosives.

Avoid contact with the warm exhaust pipe or the bottom of the machine.

### DANGER Fire hazard

*If a fire starts in the machine, it can cause injury.*

If possible use an ABE-class powder extinguisher, other wise use a BE-type carbon dioxide fire extinguisher.

### DANGER Fuel hazard

*The fuel is flammable and fuel fumes can explode when ignited, causing serious injury or death.*

Protect your skin from contact with the fuel. If fuel has penetrated the skin, consult a qualified health professional.

Never remove the filler cap, or fill the fuel tank when the machine is hot.

Fill the fuel tank outdoors or in a clean and well ventilated place, free from sparks and open flames. Fill the fuel tank at least ten meters (30 feet) from the place where the machine is to be used.

Release the filler cap slowly to let pressure escape.

Never over fill the fuel tank.

Make sure the filler cap is screwed on when the machine is used.

Avoid spilling fuel on the machine, wipe off any spilled fuel.

Check regularly for fuel leaks. Never use the machine if it is leaking fuel.

Never use the machine in the proximity of material that can generate sparks. Remove all hot or spark-generating devices before starting the machine.

Never smoke when filling the fuel tank or when working with the machine or servicing it.

Only store fuel in a container that is specially constructed and approved for the purpose.

Consumed fuel and oil containers must be taken care of and returned to the retailer.

Never use your fingers to check for fluid leaks.

**WARNING Unexpected movements**

*The machine is exposed to heavy strains during operation. If the machine breaks or gets stuck, there may be sudden and unexpected movements that can cause injuries.*

Always inspect the machine prior to use. Never use the machine if you suspect that it is damaged.

Make sure that the handle is clean and free of grease and oil.

Keep your feet away from the machine.

Never sit on the machine.

Never strike or abuse the machine.

Pay attention and look at what you are doing.

**WARNING Dust and fume hazard**

*Dusts and /or fumes generated or dispersed when using the machine may cause serious and permanent respiratory disease, illness, or other bodily injury (forexample, silicosis or other irreversible lung disease that can be fatal, cancer, birth defects, and /or skin inflammation). Some dusts and fumes created by compaction work contain substances known to cause respiratory disease, cancer, birth defects, or other reproductive harm.*

*Dust and fumes in the air can be invisible to the naked eye, so do not rely on eye sight to determine if there is dust or fumes in the air. To reduce the risk of exposure to dust and fumes, do all of the following:*

Perform site-specific risk assessment. The risk assessment should include dust and fumes created by the use of the machine and the potential for disturbing existing dust.

Wear, maintain and correctly use respiratory protection as instructed by your employer and as required by occupational health and safety regulations. The respiratory protection must be effective for the type of substance at issue (and if applicable, approved by relevant governmental authority).

Work in a well ventilated area.

If the machine has an exhaust, direct the exhaust so as to reduce disturbance of dust in a dust filled environment.

Operate and maintain the machine as recommended in the operating and safety instructions.

Wear washable or disposable protective clothes at the worksite, and shower and change in to clean clothes before leaving the work site to reduce exposure of dust and fumes to your self, other persons, cars, homes, and other areas.

Avoid eating, drinking, and using tobacco products in areas where there is dust or fumes.

Wash your hands and face thoroughly as soon as possible upon leaving the exposure area, and always before eating, drinking, using tobacco products, or making contact with other persons.

Comply with all applicable laws and regulations, including occupational health and safety regulations.

Participate in air monitoring, medical examination programs, and health and safety training programs provided by your employer or trade organizations and in accordance with occupational health and safety regulations and recommendations. Consult with physicians experienced in relevant occupational medicine.

Work with your employer and trade organization to reduce dust and fume exposure at the work site and to reduce the risks. Effective health and safety programs, policies and procedures for protecting workers and others against harmful exposure to dust and fumes should be established and implemented based on advice from health and safety experts. Consult with experts.

**DANGER Exhaust gas hazard**

*The exhaust gas from the machine's combustion engine contains carbon monoxide which is poisonous, and chemicals which cause cancer, birth defects, or other reproductive harm. Inhalation of exhaust fumes can cause serious injury, illness, or death.*

Never inhale exhaust fumes.

Ensure good ventilation (extraction of air by fan if necessary).

### **WARNING Projectiles**

*Failure of the work piece, of accessories, or even of the machine itself may generate high velocity projectiles. During operating, splinters or other particles from the compacted material may become projectiles and cause personal injury by striking the operator or other persons. To reduce these risk:*

Use approved personal protective equipment and safety helmet, including impact resistant eye protection with side protection.

Make sure that no unauthorised persons trespass into the working zone.

Keep the work place free from foreign objects.

### **WARNING Rotating blades hazards**

*There is a risk of hands and feet getting caught by the rotating blades when the machine is running. This can cause personal injury.*

Never place your hands or feet inside the protection ring when the machine is running

### **WARNING Motions hazards**

*When using the machine to perform work-related activities, you may experience discomfort in the hands, arms, shoulders, neck, or other parts of the body.*

Adopt a comfortable posture whilst maintaining secure footing and avoiding awkward off-balanced postures.

Changing posture during extended tasks may help avoid discomfort and fatigue.

In case of persistent or recurring symptoms, consult a qualified health professional.

### **WARNING Vibrations hazards**

*Normal and proper use of the machine exposes the operator to vibration. Regular and frequent exposure to vibration may cause, contribute to, or aggravate injury or disorders to the operator's fingers, hands, wrists, arms, shoulders and/or nerves and blood supply or other bodyparts, including debilitating and/or permanent injuries or disorders that may develop gradually over periods of weeks, months, or years. Such injuries or disorders may include damage to the blood circulatory system, damage to the nervous system, damage to joints, and possibly damage to other body structures.*

*If numbness, persistent recurring discomfort, burning sensation, stiffness, throbbing, tingling, pain, clumsiness, weakened grip, whitening of the skin, or other symptoms occur at any time, when operating the machine or when not operating the machine, stop operating the machine, tell your employer and seek medical attention. Continued use of the machine after the occurrence of any such symptom may increase the risk of symptoms becoming more severe and /or permanent.*

*Operate and maintain the machine as recommended in these instructions, to prevent an unnecessary increase in vibration.*

*The following may help to reduce exposure to vibration for the operator:*

If the machine has vibration absorbing handles, keep them in a central position, avoid pressing the handles into the end stops.

When the percussion mechanism is activated, the only body contact with the machine you should have are your hands on the handle or handles. Avoid any other contact, for example supporting any part of the body against the machine or leaning onto the machine trying to increase the feed force.

Make sure that the machine is well-maintained and not worn out.

Immediately stop working if the machine suddenly starts to vibrate strongly. Before resuming the work, find and remove the cause of the increased vibrations.

Participate in health surveillance or monitoring, medical exams and training programs offered by your employer and when required by law.

When working in cold conditions wear warm clothing and keep hands warm and dry.

*See the "Noise and vibration declaration statement" for the machine, including the declared vibration values. This information can be found at the end of these Safety and operating instructions.*

**WARNING Trapping hazards**

*There is a risk of neck ware, hair, gloves, and clothes getting dragged into or caught by rotating machineparts. This may cause choking, scalping, lacerations, or death. To reduce the risk:*

Never grab or touch a rotating machine part.

Avoid wearing clothing, neck ware or gloves that may get caught.

Cover long hair with a hair net.

**DANGER Electrical hazard**

*The machine is not electrically insulated. If the machine comes in to contact with electricity, serious injuries or death may result.*

Never operate the machine near any electric wire or other source of electricity.

Make sure that there are no concealed wires or other sources of electricity in the working area.

**DANGER Concealed object hazard**

*During operating, concealed wires and pipes constitute a danger that can result in serious injury.*

Check the composition of the material before operating.

Watch out for concealed cables and pipes for example electricity, telephone, water, gas, and sewage lines.

If the machine seems to have hit a concealed object, switch off the machine immediately.

Make sure that there is no danger before continuing.

**WARNING Involuntary start**

*Involuntary start of the machine may cause injury.*

Keep your hands away from the start and stop device until you are ready to start the machine.

Learn how the machine is switched off in the event of an emergency.

**WARNING Noise hazard**

*High noise levels can cause permanent and disabling hearing loss and other problems such as tinnitus (ringing, buzzing, whistling, or humming in the ears). To reduce risks and prevent an unnecessary increase in noise levels:*

Risk assessment of these hazards and implementation of appropriate controls is essential.

Operate and maintain the machine as recommended in these instructions.

If the machine has an silencer, check that it is in place and in good working condition.

Always use hearing protection.

**TRANSPORT, PRECAUTIONS**

**WARNING Loading and unloading hazard**

*When the machine is lifted by a crane and similar appliance, this can lead to injury.*

Use marked lifting points.

Make sure that all lifting devices are dimensioned for the weight of the machine.

Never remain under or in the immediate vicinity of the machine.

**MAINTENANCE, PRECAUTIONS**

**WARNING Unexpected start hazard**

*During maintenance or when changing blades on the machine, there is a risk that the engine backfires or that the machine unexpectedly starts. This applies especially when the engine is hot and if the switch is in position ON. This can result in serious personal injury.*

Always let the engine cool down.

Always turn the switch to position OFF.

Always take the cap off the spark plug.

**WARNING Unexpected start hazard**

*Any machine modification may result in bodily injuries to yourself or others.*

Never modify the machine. Modified machines are not covered by warranty or product liability.

Always use original parts, insertion tools, and accessories.

Change damaged parts immediately.

Replace worn components in good time.

**CAUTION High temperature**

*The machine's engine exhaust pipe, and bottom become hot during operation. Touching them can lead to burns.*

Never touch a hot machine.

Never touch the bottom of the machine when its hot.

Wait until the engine, exhaust pipe, and bottom of the machine have cooled down before carrying out maintenance work.

**STORAGE, PRECAUTIONS**

Keep the machine in a safe place, out of the reach of children and locked up.

**TECHNICAL DATA**

**HIGH FREQUENCY POKER WITH INTEGRATED CONVERTER**

Model, standard:.....PVEL 38, 50, 58  
 Model with de-vibrated pistol handle:.....PVEL-D 38, 50, 58  
 Motor in head, type.....210 V, 3phase 200 Hz

**Motor winding:**

Built-in thermostatic protection on  
 the motor winding.....Power off temperature approx. 150-160 degrees  
 Winding isolation.....Temperature limit on 180 degrees

**Converter, type:**

Input from wall outlet: .....230V, 1-phase, 50 Hz  
 Output to the poker head: ..... 210V, 3-phase, 200 Hz

**Cable lenght:**

PVEL / PVEL-D.....15 m / 1,5m + 20m

**Hose lenght:**

Standard.....5 m / 0,5m  
 Special lenght are available for both PVEL and PVEL-D

**WEIGHTS:**

<b>Modell</b>	<b>Total weight (Kg)</b>
PVEL 38	14
PVEL 50	18
PVEL58	20
PVEL-D 38	11,5
PVEL-D 50	14,5
PVEL-D 58	16,5

**Protection functions of the converter**

- IP 67
- The electrical card is protected against mechanical shock.
- Internal protection against current leakage. Immediate shoutdown if leakage more than 20mA provides total protection during use.
- Protection against short circuit for all componenst included.
- (Additional protection against leakage on the cables, 10mA.)
- Protection against interruption of any phase to the electric motor.
- Protection against overheating of the converter box
- Electro-magnetic filter compatibility prevents electromagnetic interference

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## FIELD OF APPLICATION AND USE OF CONCRETE VIBRATOR

A prerequisite for the finished floor to meet the quality requirements is to properly treat the fresh concrete. During poker vibration, concrete is submitted to vibration which will force trapped air to the surface making concrete homogeneous.

It is recommended that the slab be always poker vibrated if the thickness exceeds 100 mm or if the slab is double reinforced. The next step is therefore to thoroughly compact concrete with a poker vibrator.

The poker size should be adapted to the density of reinforcement and concrete thickness. Care is required at rails, forms and stop ends. Introduce the vibrator vertically in the concrete mass without moving it horizontally. Do not transport concrete with a poker vibrator. This would increase the risk of over vibration.

Always start by leveling vibration. Make short pokes in order to level high spots. The concrete vibrator should be introduced into the mass at regular intervals. The interval should be from approximately 8 times the diameter of the poker. Duration of each insertion shall be inside 5-15 seconds. The time in vibrating the different layers should not be big to avoid cold joints. Do not push or force the vibrator into the mass, it could be stuck in the reinforcements.

Always remove the poker vertically with movements upwards and downwards so the concrete fills the empty space again. Do not switch off until you stop the vibration completely. Se speed of removing is approximately 8 cm per second.

The time is shorter for a fluid mass; a vibration in excess can produce segregation. It is considered the concrete to be well vibrated when the surface around the poker is shiny and compact and there is no more air bubbles, as well a change in the noise of the vibrator is produced. Keep a distance of 7 cm minimum from any walls or form works.

Choose the type of vibrator adequate to the dimensions of the structure to vibrate, the distance among the reinforcement and the slump cone. It is recommendable to have an additional concrete vibrator.

Before starting, check that the concrete vibrator is in good condition and it works correctly. Use the means of safety and protection.

Pour the concrete in the structure avoiding high heights. Try to pour leveled the concrete. The thickness of every layer should be less than 50 cm, The recommendation is between 30 and 50 cm.

In order to vibrate slabs, the poker has to be kept oblique so that the contact superficies with mass is bigger and the compacting effect is better.

**Do not keep the concrete vibrator out of the concrete during longer periods. Stop it during residence in the concrete vibration. The concrete slab is working as a cooler for the vibrator tub and if this not is respected, a break down will appear inside a shorter period with operating lost and unnecessary cost for the owner.**

Follow the maintenance instructions.

## PREPARATIONS AND OPERATING CONDITION

For your own safety, as protection for others, and to avoid damage to the equipment, read carefully this manual and operating guidelines.

1. Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.
2. Never carry or pull the tool by using the feed cable, and never for removing the outlet from the feed station.
3. Replace damaged feed cable immediately if a failure has been found.
4. Do not keep working the poker out of the concrete more than 5 minutes.
5. Do not stop the poker inside the concrete.
6. Change the wear parts to avoid damage to the internal parts. (Check wearing table for the poker)

## CONVERTER CONNECTION TO THE SYSTEM

The model PVEL is connected to the main 230V / 50-60Hz (single phase)

Use a residual current device (“rcd”) with a rated tripping current of 30mA for each converter. Rcd should be installed either at the distribution board which feeds the mains supply sockets or at the fixed main supply socket. Do not plug others electric tools to the rcd where is plugged the converter.

### DISCONNECTING THE EQUIPMENT.

Stop the converter by disconnecting the proper switch, and finally remove the plug from the main.

### EARTH CONNECTION

To protect the user from an electrical shock, the converter should be correctly connected to earth.

The converters are equipped with three cables and their respective plugs. The adequate earth socket should be used to connect the converters. If the socket with earth is not available, an earth adapter should be used before connecting the plugs.

### EXTENSION CABLES

Always use extension cables with earth wire and its respective plug with earth in the female and male plug.

Do not use damaged or worn out cables.

Avoid heavy loads on cables.

To determine the transversal section, follow the following procedure:

## PROCEDURE TO DETERMINE THE NECESSARY TRANSVERSAL SECTION IN CABLE EXTENSION

Do the following verifications and take the highest section of cable:

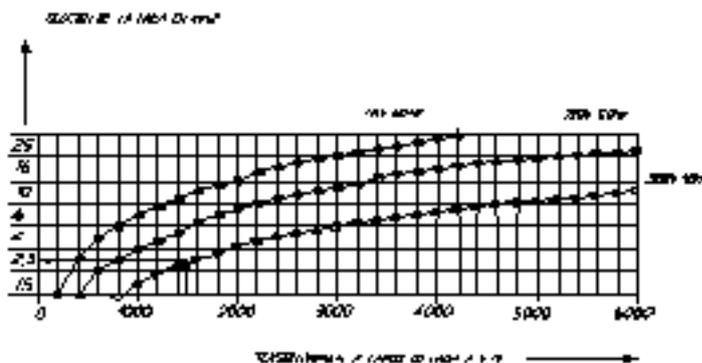
1. The ohmic resistance and inductive resistance of the cable with the permitted loss of voltage of 5%,  $\cos\phi=0.8$  through the frequency and voltage curve I.e.

Voltage nominal:.....380 V / 50 Hz

Nominal current:.....10 A

Cable length:.....150 m

Entering the curve with the product: Intensity x Length=10x150=1500 Am We obtain a 2.5 mm<sup>2</sup> section



2. The permitted heating of the cable according to VDE standard ( minimum transversal section table required).  
 I. e. For 10 A, according to table for 15 A or less, the section is of 1 mm.  
 Therefore, the section chosen is equal to 2.5 mm<sup>2</sup>, Always choose the highest transversal section of the two verifications.

Line mm <sup>2</sup>	Maximum A	Max Fuse A
1	15	10
1,5	18	10 / 3-16 / 1-
2,5	26	20
4	34	25
6	44	35
10	61	50
16	82	63
25	108	80

**SPECIFIC SAFETY RULES**

For your own safety, as protection for others, and to avoid damage to the motor, read carefully the following usage recommendations.

1. Firstly read the instruction of the converter where you are going to connect the vibrating pokers.
  2. For the operation of the vibrating poker, make sure that operators have been instructed in the proper usage of the machine
  3. The vibrating poker should only be used in the specific jobs for which it has been developed and under the instruction and safety recommendations of this manual.
  4. Be sure that the parts of the poker are tight before starting working.
  5. The vibrating poker plug should not be used to start or stop the equipment, use the switch.
  6. Protect the electrical cable against heat, oil, or sharp edges.
  7. Avoid the flattening of the cable by heavy machinery which could cause breakage
  8. Check the electrical cable is with the proper section and it is in good condition
  9. Avoid the vibrating pokers are working in contact with hard object during a long period.
  10. Disconnect the vibrating poker from the converter before doing any operation.
  11. Change the external wear parts to avoid damage to the internal parts.
  12. Proper protective equipment SHOULD BE USED because the acoustic pressure of this machine is 79dB (ISO 6081) and acoustic power level is 85dB acc. to ISO 3744.
- IN ADDITION, LOCAL COUNTRY ESTABLISHED ORDINANCES SHOULD BE RESPECTED.

Model <b>1</b>	Model <b>2</b>	Effective value of vibration in hose (m/s <sup>2</sup> ) <b>1</b>	Effective value of vibration in hose (m/s <sup>2</sup> ) <b>2</b>
PVEL 38	PVEL-D 38	1,40	0,41
PVEL 50	PVEL-D 50	1,80	0,56
PVEL 58	PVEL-D 58	2,30	0,48

**Hand/arm vibration hav according to ISO 5349**

**PVEL**

Measured 2m from the poker head.

**PVEL-D**

Measured on the pistol handle.

Ensure that the parts of the rod are tightened and that electrical cables and other equipment are in good condition before starting work

When finishing the job or when taking a break, the operator should switch off, disconnect it from the electrical system, and place it in such a way that should not fall or tip in fresh concrete.

**MAINTENANCE**

When replacing parts with new, use only SWEPAC original parts.

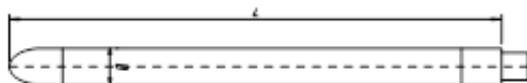
Lubricating oil, rod bottle, syntetic oil.....Klübersynth GH 6, or similar

Volume.....Tube cap volume for each diameter

**REGULAR MAINTENANCE**

**ACCEPTED WEAR FOR DIAMETERS AND LENGTHS OF THE POKERS.**

MODEL	DIAMETER (mm)	LENGHT (mm)
PVEL 38	36,5 (38)	365 (370)
PVEL 50	48 (50)	360 (370)
PVEL 58	56 (58)	410 (420)



The dimensions in parentheses are the original diameters and the original lengths.

Change the hose when the minimum diameter is reached.

Change the tube tip when the minimum length is reached.

1. Every 12 months or 500 hours of working a lubrication of the bearings of the vibrating pokers is recommended depending of the use. An expert should dismantle the vibrating poker. Clean with solvent the bearings and check it. Fill the hole in the cap with the recommended oil. When you assemble, place the sealant in all the threads. It is important that all the parts are tightened (600 to 800 Nm of torque) to avoid the water does not penetrate in the head. Finally, apply two weld spots to secure the parts do not loosen.
2. Always you change the switch be sure the bolts of the switch box are tighten and the box is watertight.
3. After maintenance jobs all the parts must be assembled correctly.
4. Every 12 month or more frequently, depending on the use, it is recommended an inspection be done by an authorized dealer.
5. Check the wear of the poker controlling the outside diameter and length of the poker. Replace the housing or cap when the diameter or length in the least point is less than the specified in the table according to the model.

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**INSPECTION DETAIL REPAIR**

1. Inspection current consumption rod motor Amp.

<b>Rod (diameter)</b>	<b>Amp. obelastad</b>
38	1,3
50	1,5
58	1,7
60	3

2. Kontroll motstånd i motorlindning Ohm

<b>Rod (diameter)</b>	<b>Resistance (Ohms)</b>
38	28
50	10,6
58	8,8
65	2,6

**ELECTRIC EQUIPMENT PVEL**

**ELECTRIC WIRINGS AND ELECTRIC COMPONENTS**



**TROUBLESHOOTING OUTSIDE:**

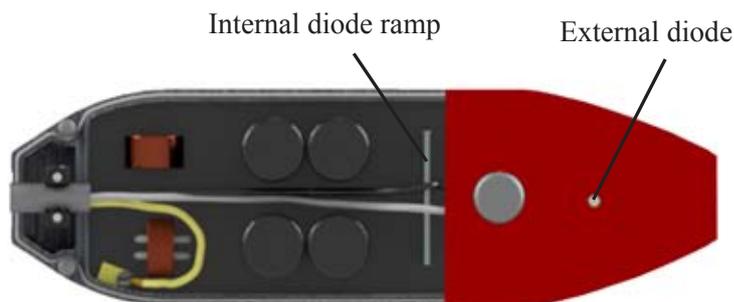
LED	INFORMATION
Green flashing	It is connected, waiting to start
Green	Normal working
Red	Overcurrent / Short-circuit
Yellow	Leakeage current
Red flashing	Fail of a phase

**TROUBLESHOOTING INTERNALLY:**

PROBLEM	CAUSE / SOLUTION
Not working, green led (1) OFF	See if it has power Check cord Check plug Converter burnt
Red led (2) ON	Stator poker burnt Converter burnt
Yellow led (3) ON	Earth leakage current (check poker, connections) Water inside converter or poker
Red blue (4) ON	Lack of phase in poker (3 phase motor)
Led (2+3+4) ON	Over temperature. (check converter's cleanness and remove stacked concrete and any unnecessary cover)

**OTHER:**

The poker is noisier	Bearings are not in good conditions.
The vibrating poker works correctly but it overheats	Check the poker is not working out of concrete. Verify the input voltage of the converter. Bearings in bad conditions or without grease





## EC-declaration of conformity

### Manufacturer

**Swepac AB  
Blockvägen 3  
34132 Ljungby**

1. Category: PokerVibrator

2. Type: PVEL / PVEL-D

The product complies with the following directives:

2006 / 42 / EG

2000 / 14 / EG

2004 / 108 / EG

EN 500-1

EN 500-4

EN 12649:2008+A1:2011

ISO 11201

ISO 5349-2:2001

Technical documentation held by:

Swepac AB, Blockvägen 3 SE-34132 Ljungby  
Hans Holmlund / Product Manager

# SWEPAC

**SWEPAC AB**

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