

## Soil-Pasteurizer

Maschine-no.      year of constr.

**STERILO 1 K**

# Operating manual

Harter Elektrotechnik  
Schloßhof 95

D-77773 Schenkenzell

Phone: 07836/7667

Fax: 07836/7540

## TABLE OF CONTENTS

<b>1.</b>	<b>GENERAL INFORMATION</b>	<b>3</b>
1.1.	Preface	3
1.2.	Symbols for safety notes	3
<b>2.</b>	<b>DEVICE DESCRIPTION</b>	<b>4</b>
2.1.	General	4
2.2.	Technical information	4
<b>3.</b>	<b>SAFETY</b>	<b>5</b>
3.1.	Proper employment	5
3.2.	Occurring dangers	5
3.3.	Operation directions	6
3.4.	Prohibition of operation	6
3.5.	General information on safety-conscious work	6
3.6.	Behaviour in case of emergency: emergency shutdown function	6
<b>4.</b>	<b>TECHNICAL DATA</b>	<b>7</b>
4.1.	Dimensional picture	7
4.2.	Power data	7
<b>5.</b>	<b>TRANSPORT AND PACKING</b>	<b>8</b>
<b>6.</b>	<b>MOUNTING / INSTALLATION</b>	<b>9</b>
6.1.	Safety measures for set-up and connection	9
6.2.	Set-up	9
6.3.	Connection - electronics	9
<b>7.</b>	<b>COMMISSIONING AND OPERATION</b>	<b>10</b>
7.1.	Operating elements	10
7.2.	Handling	11
<b>8.</b>	<b>SERVICE AND MAINTENANCE</b>	<b>13</b>
<b>9.</b>	<b>GUARANTEE</b>	<b>14</b>
<b>ANHANG:</b>		
A	Overview of replacement and wear parts: Soil-Pasteurizer STERILO 1 K	15
B	Circuit diagram: Soil-Pasteurizer STERILO 1 K	16



## 1. GENERAL INFORMATION

### 1.1 Preface

These operating instructions include information and instructions for commissioning, operation, service and maintenance of the HARTER-Soil-Pasteurizer STERILO 1 K.

Damages due to non-compliance with the operating instructions are self-incurred and the HARTER company will not assume any liability.

The HARTER company reserves the right to make technical alterations in order to improve the Soil-Pasteurizer STERILO 1 K or parts of it.

The copyright on the entire operating instructions remains with  
**Harter Elektrotechnik**  
**Schloßhof 95**  
**D-77773 Schenkenzell**

### 1.2. Symbols for safety notes

**WARNING:**

This symbol and this title are used for designating possibly dangerous situations. Non-compliance with the given working advice can result in injuries or severe accidents and/or in damages to the device.

**NOTE:**

This symbol and this title are used for drawing attention to special information, e.g. to helpful working tips.

## **2. DEVICE DESCRIPTION**

### **2.1 General**

#### **HARTER-Soil-Pasteurizer STERILO 1 K**

The STERILO-Soil-Pasteurizer-System, tried and tested in many thousand cases over several decades, guarantees an optimal quality of cultivation soils. Through continuous improvements, a high device quality has been achieved, so the user may often over decades have a constant benefit with the same device, depending on treatment and maintenance.

### **2.2 Technical information**

- Device finish in corrosion-resistant materials**
- Good caloric conductivity**
- Torsionally rigid construction**
- Simple handling**
- Temperature regulation unit**

### 3. SAFETY

#### 3.1 Proper employment

The Soil-Pasteurizer STERILO 1 K has been conceived for pasteurizing cultivation and pot soil.

The soils are pasteurized in the soil pasteurizer STERILO 1 K with their own moistness in the temperature range of 70°C to 90°C, depending on the parasites in the soil.

#### 3.2 Occurring dangers



**WARNING:**  
**Fire risk!**

Pure peat dust may only be pasteurized in a well moist state.



**NOTE:**  
**Risk of over-fertilizing!**

Do not fertilize the soil before pasteurization.

After pasteurization, direct the culture's nutrient requirements with liquid fertilizer



**NOTE:**  
Disinfect work tools before working with pasteurized soil  
Always store pasteurized soil separately.



**WARNING:**  
**Risk of burns!**

When emptying warm soil out of the soil pasteurizer, please consider that the soil still has a higher temperature,



**WARNING:**  
Do not clean the Soil-Pasteurizer STERILO 1 K with a water hose or a high-pressure cleaning apparatus.

### 3.3 Operation directions

**IMPORTANT:**

**The directions for the prevention of accidents given by the professional associations are to be considered!**

The user is obligated to provide that the Soil-Pasteurizer STERILO 7K/A is only operated when in a perfect state.

Depending on the way of use and the place of installation, the user must determine further indications for the safe operation of the device according to the operation instructions.

**These operation instructions are to be published  
in the factory at a proper place and must be  
followed by the employees!**

HARTER does not under any circumstance assume liability for personal, business and future damages which might occur because of arbitrary reconstruction affecting safety or because of defect or shutdown of the delivered item.

### 3.4 Prohibition of operation

Persons who have not been taught the functioning and the work process of the HARTER-Soil- Pasteurizer STERILO 1 K or who do not possess the necessary knowledge from the operation instructions are not allowed to work this device.

### 3.5 General information on safety-conscious work

A proper servicing of the soil pasteurizer STERILO 1 K as well as good knowledge about the pasteurization processes are prerequisites for safety-conscious work. Service guidelines are to be taken from chapter 8.

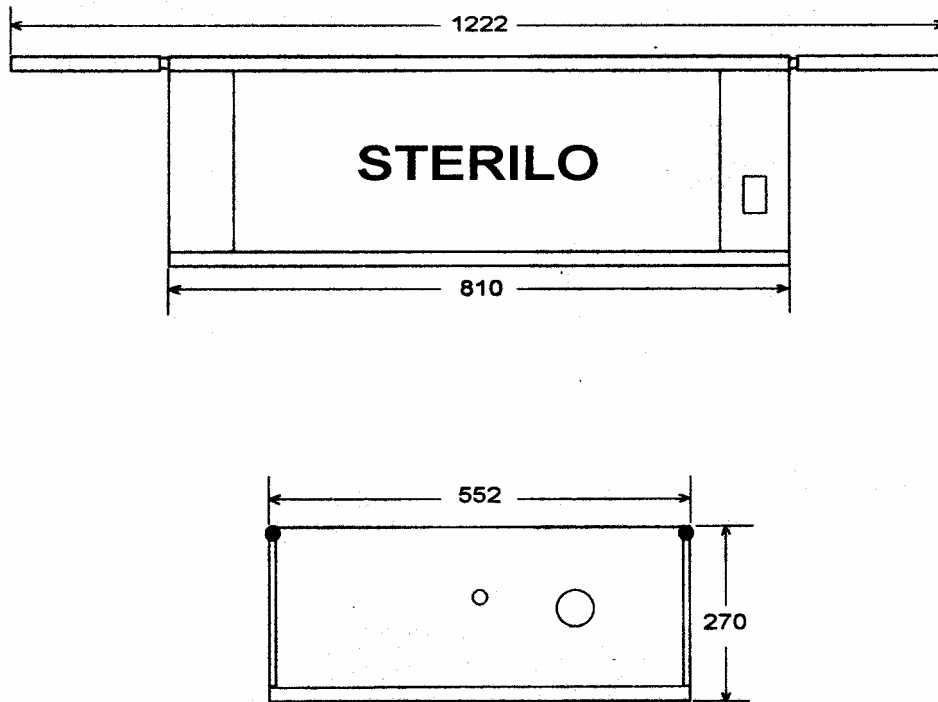
### 3.6 Behaviour in case of emergency: emergency shutdown function

Pull mains from plug

⇒ current circuit is interrupted immediately

**4. TECHNICAL DATA**

**4.1 Dimensional picture**



**4.2 Power data**

Power data	STERILO 1 K	
Contents	m <sup>3</sup>	approx. 0,1
Pasteurization time (average value) in reference to room and soil temperature of approx. 15 °C or 19 °C and at a water content of approx. 27%	h	approx. 1-1,5
Weight	kg	25
Colour	RAL	1007

**Table 1: Power data of the Soil-Pasteurizer STERILO 1 K**



## 5. TRANSPORT AND PACKAGING

The HARTER-Soil-Pasteurizer STERILO 1 K including wooden bottom and lid is transported on a manifold coated corrugated board.

Sea shipping is only done in a secured wooden box closed on all sides.

- Check completeness of delivery referring to delivery note.
- Check HARTER-Soil-Pasteurizer STERILO 1 K for transport damage:  
Inform shipper, insurance company and manufacturer immediately about possible damage.

## 6. MOUNTING IINSTALLATION

### 6.1 Safety measures for set-up and connection



**WARNING:**

Have connection work, and service work for electronics if necessary, carried out by appropriately trained personnel only.



**NOTE:**

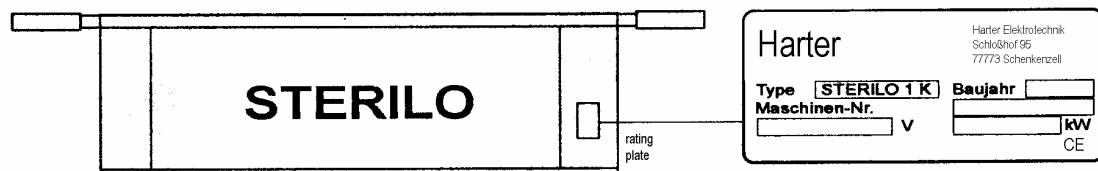
The national directions for prevention of accidents for electric installations and operating material as well as the German directions for prevention of accidents VBG 4 / UW 1.4 - electric installations and operating material -are by all means to be considered!

### 6.2 Set-up

- ⇒ Remove transport packaging
- ⇒ Lay wooden bottom on a horizontal floor with smooth surface on top
- ⇒ Set STERILO 1 K on the wooden bottom with the handles on top
- ⇒ Put loose lid of the STERILO next to the STERILO 1 K

### 6.3 Connection – electronics

Check if the **house-internal** voltage, the nature of current and the frequency correspond to the indications on the rating plate and in table 2 -Connection values.



Maschinen-Nr.    ⇒    machine no.  
 Baujahr            ⇒    constructed

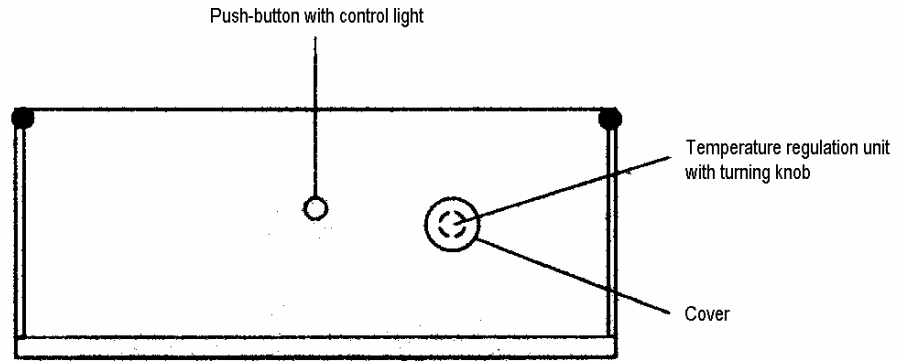
The HARTER-Soil-Pasteurizer STERILO 1 K is installed by the works and is ready for operation.

Connection values			STERILO 1 K
Electronics	Electric connection	V, Ph/Hz	230/50
	Connection value	KW	2,0
	Back-up fuse	A	max. 16
	Heating capacity	KW	2,0

Tabelle 2:            Connection values for the Soil-Pasteurizer STERILO 1 K

**7. COMMISSIONING AND OPERATION**

**7.1 Operating elements**



**Diagram 1: Front view of the Soil-Pasteurizer STERILO 1 K**

<b>Temperature regulation unit (⇒ Diagram 1)</b>	
The nominal value for the pasteurizing temperature (operation/working temperature) is adjusted to 80 °C by the works.	
Altering the nominal value of the pasteurization temperature:	
<ol style="list-style-type: none"> <li>1. Pull mains from plug</li> <li>2. Open cover</li> <li>3. Turn the turning knob of the temperature regulation unit back until it stops</li> <li>4. Adjust new nominal value for the pasteurizing temperature at the temperature regulation unit</li> <li>5. Close and screw cover</li> </ol>	

<b>Push-button with control light (⇒ Diagram 1)</b>	
Control light: <b>ON</b>	⇒ voltage present ⇒ heating active
Control light: <b>OFF</b>	⇒ adjusted temperature of pasteurization attained ⇒ heating not active

## 7.2 Handling



### NOTE:

The directions for the prevention of accidents given by the professional associations are by all means to be considered!

The Soil-Pasteurizer STERILO 1 K is professionally and correctly connected according to chapter 6.

⇒ **HARTER-Soil-Pasteurizer STERILO 1 K is ready for commissioning.**



Fill STERILO 1 K with soil up to rim

### NOTE:

If the soil is very dry, only fill the soil pasteurizer STERILO 1 K halfway.

Moisten the soil inside the STERILO 1 K, then continue filling it up the rim.

Cover the STERILO 1 K with the delivered lid.

For an even better thermal insulation, you may lay a jute sack or something similar over the STERILO 1 K.

Plug in electric cable

⇒ control light: **ON**

⇒ Pasteurizing process START

Heavy soil, 27% water content, 19 °C room or soil temperature:

- Time for pasteurizing process: approx. 1 hours
- Energy consumption: 2 KW

Light soil, 27% water content, 15°C room or soil temperature:

- Time for pasteurizing process: approx. 1,5 hours
- Energy consumption: 3 KW

⇒ Control light **OFF**

⇒ Pasteurization process automatically ended



Pull mains from plug

### HINWEIS:

If the adjust temperature decrease about 5 °C, the thermostat will automatically start the process again.



### WARNING:

#### Risk of burns!

When emptying warm soil out of the soil pasteurizer, please consider that the soil still has a higher temperature.

Empty STERILO 1 K by lifting it at the handles.

 **Note to soil pasteurization**

All soil admixtures like peat dust, heavy soil or sand must be pasteurized as well.

Practise and scientific experiments have shown that the STERILO soil can be used immediately.

Only if the soil is very rich in nutrients it is necessary to wait four to six days before one can start transplanting in case of very sensitive cultivation.

However, sowing can always be done immediately after the pasteurization in the STERILO.

When pasteurizing very dry soil, moisten it when filling it into the STERILO.

**Mechanism of the soil pasteurization with the STERILO 1 K**

In his study of the effect of heating up soil on the weed seeds' capability to germinate and the soil's physical and chemical characteristics, Dr. Boros from the EHT -Zurich has clarified that even most obstinate germs and parasites are killed through steady and well-calculated warming-up of the ground when this warming-up period is extended.

There are many diseases one cannot combat by chemical spray treatments because their germs live in the soil. This is why the soil must be decontaminated (pasteurized).

The safest and least costly control of harmful germs is the continual heat treatment in the HARTER-Soil-Pasteurizer STERILO 1 K (according to Dr. Blumer).

**Examinations**

Since 1954 the Soil-Pasteurizer STERILO 1 K has passed several governmental examinations in Germany and abroad.

The STERILO pasteurizing system was examined with great success in several research institutes, e.g. Wädenswil, Fünfhausen, Hohenheim, Weihenstephan, Großumstadt and others. Furthermore, it is continually employed in these gardening institutes and is used as a teaching aid in the *Deula* schools.

## 8. SERVICE AND MAINTENANCE

### Work room

After every pasteurizing period

- clean inside of device with a broom or a brush and keep it clean



### **WARNING:**

Do not wash down with a water hose, as the spray water pressure can damage the electronics.

### Electronics

The electronics should be properly examined by an electro-specialist in a one-year cycle.

### Temperature regulation unit

When keeping and storing the HARTER –Soil-Pasteurizer STERILO 1 K, it must be considered that the temperature regulation unit only is gauged to -10°C.

In case of temperature under -10°C, the temperature regulation unit may be destroyed.

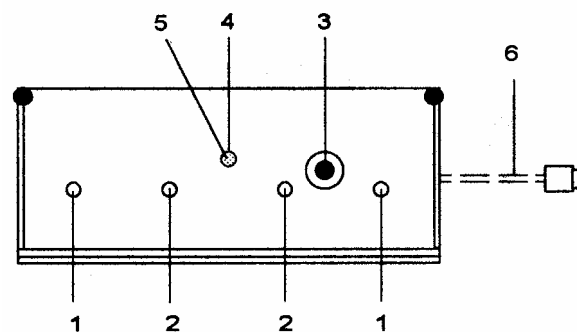
## 9. GUARANTEE

1. We guarantee for our new products for 6 months (when operated properly) counted from the day of the passage of the risk on. Our guarantee comprises maintenance or replacement of defective parts, be it due to defects in fabrication or of material.
2. A guarantee for parts not manufactured by HARTER only exists in so far as it is granted by the sub-contractors.
3. We do not guarantee for faults resulting from the following reasons:
  - improper or inappropriate use
  - alterations or maintenance carried out without our prior consent
  - faulty mounting or commissioning by the ordering party or third persons
  - natural wear
  - faulty or negligent treatment
  - inappropriate operating or substitute material
  - faulty construction work
  - inappropriate subsoil
  - chemical, electro-chemical or electric influences, as long as they are not the .supplier's fault
4. Of the costs incurred by a repair or a new delivery, we will pay the cost of the reworking or the cost of the replacement part, respectively. However, the latter requires a qualified examination and inspection. Other than that, the ordering party bears the costs. Should a third party eliminate a fault without our prior written consent, we do not bear any of the costs.

**HARTER-Soil-Pasteurizer STERILO 1 K****Overview of replacement and wear parts**

<i>Item</i>	<i>HARTER-No.</i>	<b>Designation</b>	<i>Unit</i>	<i>Comment</i>
1	30001506	heating element, 600 W	2	
2	30001505	heating element, 400 W	2	
3	30001510	temperature regulation unit, complete with setting ring and toggle	1	
4	30001516	pilot lamp, complete	1	
5	30001528	glow lamp	1	pilot lamp
6	30002300	connection line with plug	1	

STERILO 1 K  
operating side without cover

**ANNOTATION 1:**

Please always indicate the following when ordering replacement or wear parts:

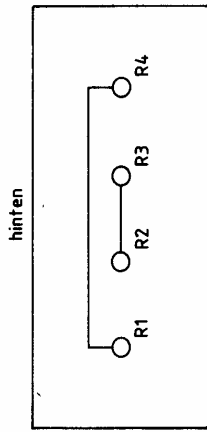
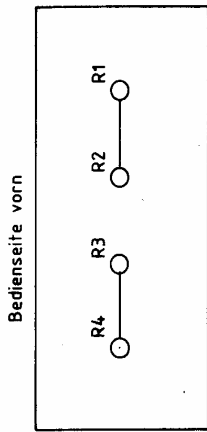
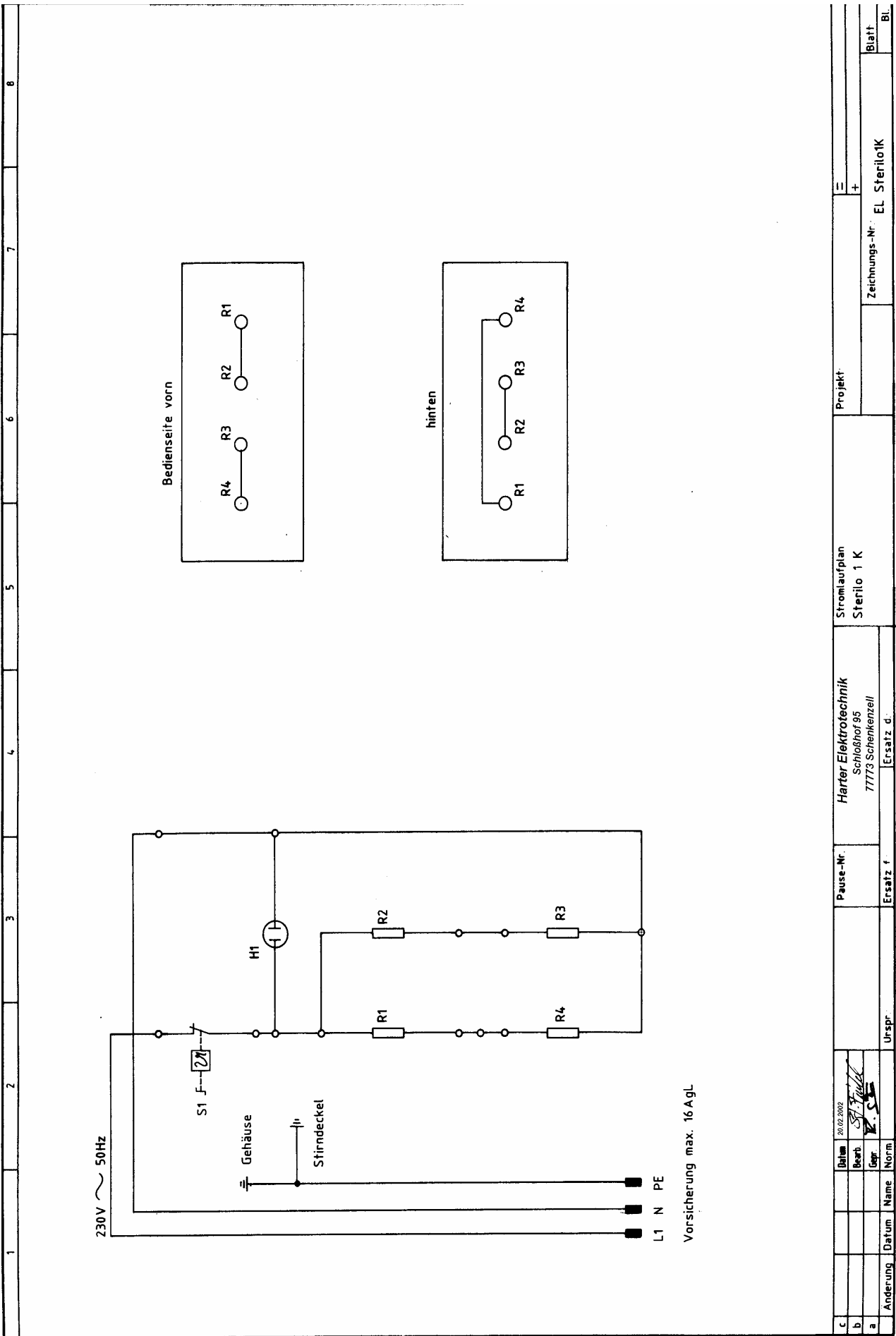
- machine number
- HARTER number
- Designation
- Amount, length or packing unit, respectively

**ANNOTATION 2:**

The above mentioned replacement and wear parts are parts with an increased likelihood of failure, also when the delivered machine is employed in compliance with directions according the HARTER operating instructions. Of course, also other parts not mentioned here above can fail unexpectedly.

Hence, claims to the completeness of this overview of replacement and wear parts cannot be granted.





Vorsicherung max. 16 AgL

1	2	3	4	5	6	7	8
c	Datum	20.02.2002	Harter Elektrotechnik		Stromlaufplan		Projekt
b	Bezh.	<i>S. F. [Signature]</i>	Schloßhof 95		Sterilo 1 K		+
a	Gepr.	<i>[Signature]</i>	77773 Schenkenszell		Zeichnungs-Nr.: EL Sterilo1K		Blatt
Änderung	Datum	Name	Norm.	Urspr.	Ersatz f.		Bl.