

# **Top spin**

**Nr. 1840 0000 / 1840 1000**

***Bedienungsanleitung***  
***Instruction manual • Mode d'emploi***  
***Istruzioni d'uso • Instrucciones para el servicio***  
***Инструкция по эксплуатации***  
***Instruções de uso • Kullanım Kılavuzu •***  
***操作说明书 • 取扱説明書 • 사용설명서***



Ideas for dental technology

# Top spin

## Nr. 1840 0000 / 1840 1000

ENGLISH

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# 1. Introduction

## 1.1 Symbols

In the instructions for use and on the unit itself you will find these symbols with the following meanings:



**Danger**

**This indicates a direct risk of injury. Consult accompanying documents!**



**Electrical current**

**This indicates a risk of hazard due to an electrical current.**



**Laser**

**Do not look into the laser beam.**



**Attention**

**Disregarding this warning may result in damage to equipment.**



**Note**

***This provides the operator with useful information to improve and ease use.***



**The device complies with the requirements of the applicable EU directives.**



**The device is subject to the EU directive 2002/96/EG (WEEE directive).**

### ► List, particular attention should be paid

- List
- List according to importance

⇒ Instructions / appropriate action / input / operational sequence:

You will be asked to carry out the action in a specified order.

- ◆ Result of an action / reaction of the device / reaction of the program:

The unit or program reacts as a result of your actions or when a specific incident occurs.

Other symbols are explained as they occur.

## 2. Safety

### 2.1 Proper Use

This device is a pinhole drilling unit designed to drill holes for the secure fixation of pins from various different pin systems in dental arches made from plaster or epoxy resin (e.g. on a polyurethane basis). The device may also be used to drill holes into acrylic base plates. It is exclusively for use in dental laboratories or dental practices.

### 2.2 Improper Use

The device must not be used:

- for drilling into metal
- for milling

The product is not designed for use in the domestic environment.

Any application other than those described in these instructions for use is regarded as improper use.

The manufacturer is not liable for damage caused by incorrect or unauthorised use.

Only spare parts supplied by the company Renfert may be used for this device.

## 2.3 Ambient Conditions for Safe Operation

The device may only be operated:

- Indoors
- Up to an altitude of 2,000 m above sea level,
- At an ambient temperature of between 5 - 40 °C [41 - 104 °F] \*),
- At a maximum relative humidity of 80 % at 31 °C [87.8 °F], dropping to a linear of up to 50 %
- Relative humidity at 40 °C [104 °F] \*),
- With mains power where the voltage fluctuations do not exceed 10 % of the nominal value,
- Under contamination level 2 conditions,
- Under over-voltage category II conditions,

\*) Between 5 - 30 °C [41 - 86 °F] the device can be operated at a relative humidity of up to 80 %. At temperatures between 31 - 40 °C [87.8 - 104 °F] the humidity must decrease proportionally in order to ensure operational readiness (e.g. at 35 °C [95 °F] = 65 % humidity, at 40 °C [104 °F] = 50 % humidity). The device may not be operated at temperatures above 40 °C [104 °F].

## 2.4 Ambient Conditions for Storage and Transport

For storage and transport the following specifications to ambient conditions apply:

- Ambient temperature - 20 – + 60 °C [-4 – + 140 °F].
- Maximum relative humidity 80 %.

## 2.5 Hazard and Warning Information



### 2.5.1 General Information

- ▶ If the device is not used in compliance with the supplied instructions, the safety of the device can no longer be guaranteed.
- ▶ The device may only be operated using a mains cable with the country-specific plug system. Any necessary alterations must be carried out by a qualified electrician.
- ▶ The device may only be operated if the information on the identification plate conforms to the specifications of your local mains power supply.
- ▶ The device may only be plugged into outlets which are connected to the protective conductor system.
- ▶ The mains plug must be easily accessible.
- ▶ Disconnect the device from the mains before carrying out work on the electrical parts.
- ▶ Check connection cables (such as power supply cords), tubes and housing (i.e. the key-pad) regularly for damage (i.e. kinks, cracks and porosity) or signs of ageing. Devices with damaged connection cables, tubes or housing parts or other defects must not be operated!
- ▶ Defective devices must be put out of service immediately. Remove the mains plug and ensure the device is not used. Send the device for repair!
- ▶ Only operate the device under supervision.
- ▶ Please observe the national accident prevention regulations!

### 2.5.2 Specific Instructions

- ▶ Caution! Laser beam! Laser class 2! Do not look into the laser beam!
- ▶ Do not use the device for milling. Risk of injury if the drill breaks.
- ▶ Never touch the drill when the unit is connected to the power supply. There is a risk of injury if the unit is accidentally activated!
- ▶ Do not operate the Top spin with long, untied hair or loose / baggy clothing. If anything gets tangled up or drawn in there is a risk of injury.
- ▶ Do not touch the drill when in motion.
- ▶ The unit should only be activated when the model is securely placed in position
- ▶ When drilling, do not hold the model directly over the laser beam - risk of injury.

## 2.6 Authorized Persons

Operation and maintenance of the device may only be performed by qualified personnel.

Any repairs not specifically described in these operating instructions may only be carried out by a qualified electrician.

## 2.7 Disclaimer

Renfert GmbH shall be absolved from all claims for damages or warranty if:

- ▶ **The product is employed for any purposes other than those specified in the operating instructions.**
- ▶ **The product is altered in any way other than those alterations described in the operating instructions.**
- ▶ **The product is not repaired by an authorized facility or if non-original Renfert parts are implemented.**
- ▶ **The product continues to be used despite obvious safety faults or damage.**
- ▶ **The product is subjected to mechanical impacts or is dropped.**

## 3. Product Description

### 3.1 General Description

The Top spin is a pinhole drilling unit designed to drill holes for the secure fixation of pins from various pin systems in dental arches made from plaster or epoxy resin and acrylic base plates.

The target laser beam ensures that the hole may be drilled with precision under the required tooth die.

The device is equipped with a quick clamping mechanism so that the drill can be changed easily without tools. The rotatable base means the unit can be used in a tilted working position of 14°.

### 3.2 Component Groups and Functioning Elements

- 1 Target laser
- 2 Drill table
- 3 Operation display
- 4 Dust Drawer
- 5 Base
- 6 Upper stop position
- 7 Spindle lock

- 8 Mains supply cable with plug
- 9 Sensor surface (on / off)
- 10 Allen key
- 11 Dust protection hood
- 12 Depth stop (under the drill table)
- 13 Warning Laser

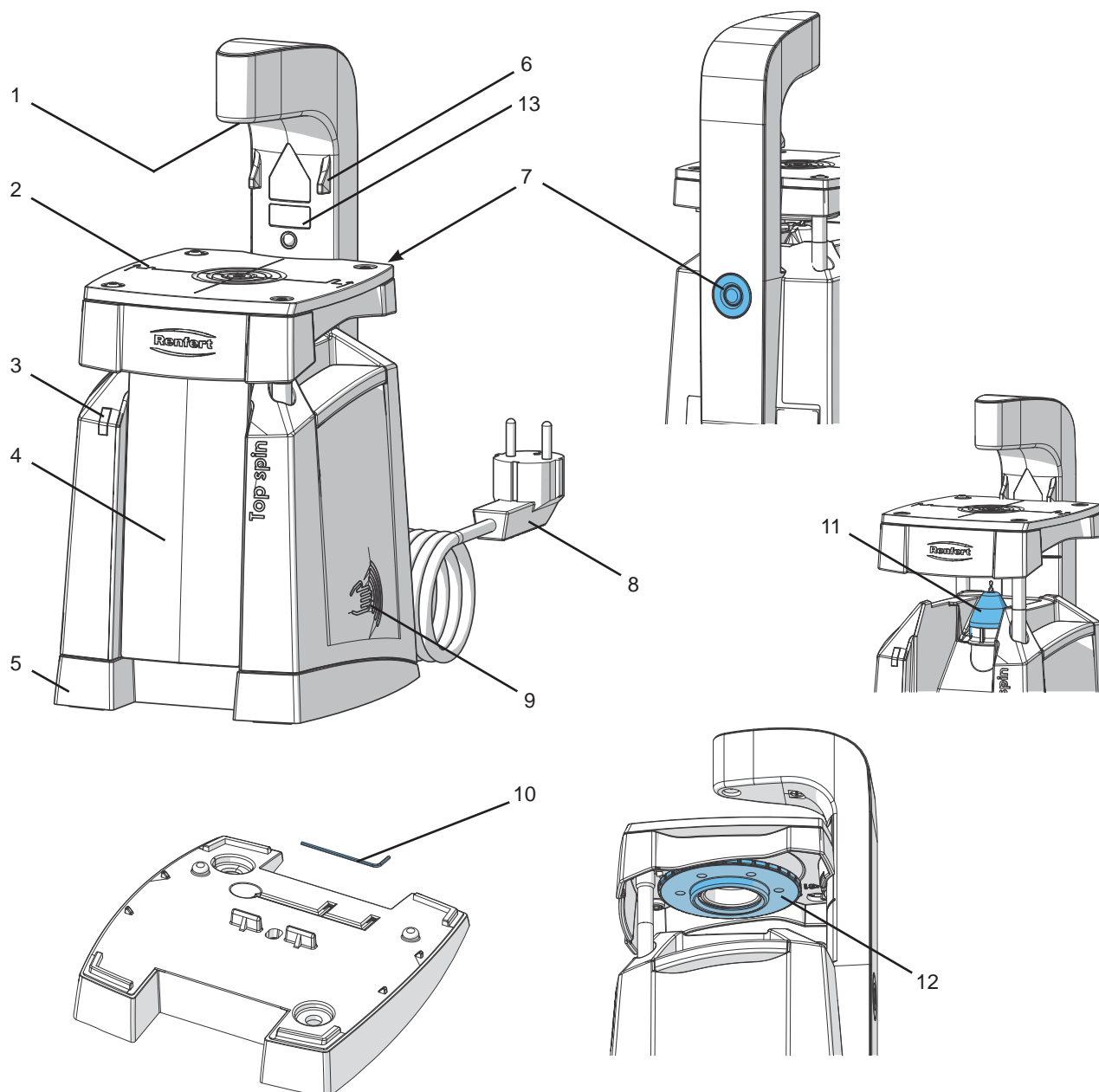


Fig. 1

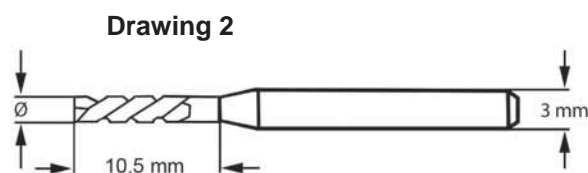
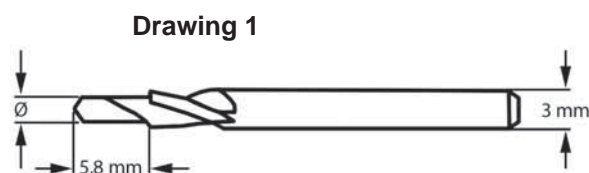
### 3.3 Included in Delivery

- 1 Top spin
- 1 Stepped drill, size: large
- 1 Instructions for use
- 1 Allen key
- 1 Replacement threaded pin (see end of the instructions for use)
- 1 Laser sticker set

### 3.4 Accessories

Item No.	Description	Size	Drill Ø	
5010 0198	Step drill, 3 pcs.	small	1.98 mm	Drawing 1
5010 0200	Step drill, 3 pcs.	medium	2.00 mm	
5010 0202 *)	Step drill, 3 pcs.	large	2.02 mm	
367 0157	Smart-Pin-drill, 3 pcs..	small	1.57 mm	Drawing 2
367 0159 *)	Smart-Pin-drill, 3 pcs.	medium	1.59 mm	
367 0161	Smart-Pin-drill, 3 pcs.	large	1.61 mm	

\*) Recommended for the Renfert Pin System. The drill sizes small, medium and large are available if the hole size should be narrower or wider.



## 4. Installation

### 4.1 Unpacking

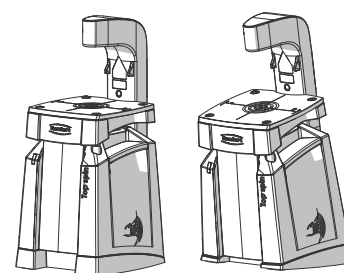
- ⇒ Take the unit and all the accessories out of the package.
- ⇒ Check to ensure all delivery parts are complete (compare section 3.3 "Included in Delivery").

### 4.2 Setting Up

- ⇒ Place the unit on a level and stable base.
- ⇒ Decide which working position you require, Fig. 2 (see section 5.4).

### 4.3 Change laser warning label

- ⇒ Remove the laser warning label in your language from the sticker set and stick over the present warning label (13, Fig. 1).



**Fig. 2**

### 4.4 Electrical Connection



**Prior to connection, check that the voltage data on the type plate matches the mains voltage.**

- ⇒ Unroll the power cable and insert the plug into the socket.

# 5. Operation

## 5.1 Switching on / off

The unit is switched on and off via the sensor surface (9).

⇒ To switch the unit on, touch the sensor surface (9) with the palm of your hand for 1 second. Do not apply pressure.

♦ The operating display (3) lights up.

♦ The target laser (1) lights up.

The drilling motor is activated when the drilling table (2) depressed.



**Only activate the drilling motor when there is a drill in place!**

### 5.1.1 Auto Off

The unit includes an automatic switch off function. If the unit is not used for a duration of 3 minutes, it automatically switches off.

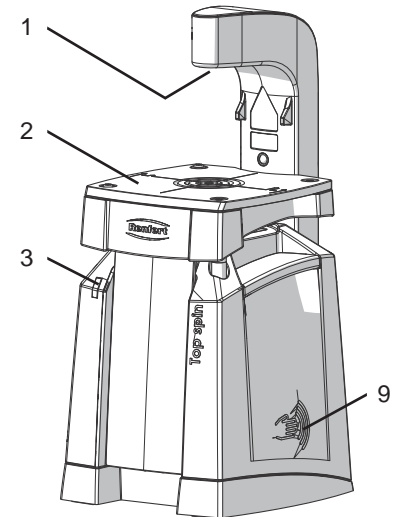


Fig. 3

## 5.2 Setting the Drilling Depth

The drilling depth can be set at the adjustable depth stop (12) underneath the drilling table. If necessary, carry out trial drillings.

The symbols on the drilling table indicate the direction of rotation:

A: shorter drilling hole

B: deeper drilling hole



**The drilling depth changes approximately 0.1 mm for each click on the depth stop.**

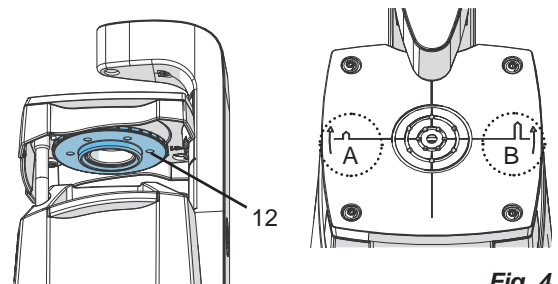


Fig. 4

## 5.3 Drilling

⇒ Place the dental arch onto the drilling table (2, Fig. 1) and align the target laser (1, Fig. 1).

⇒ Hold the dental arch with both hands.

⇒ Press the drilling table down as far as it will go.

♦ The motor will be activated automatically and begin drilling from the bottom of the dental arch.

⇒ Guide the drilling table back up.

♦ The motor will stop when the drilling table has reached its original position.

### 5.3.1 Using the Marking Rings

Next to the target laser there are marking rings (20) on the table surface, to act as a guide, so that the drill holes can be placed more precisely. If the dental arch is very narrow or if the teeth are extremely close together, it is very difficult to maintain the minimum distance between the individual pins and the dental arch edge.

Recommended approach:

⇒ Align the edge of the dental arch with the edge of the drilling hole (Fig. 6.1).

⇒ Start the first drill hole.

♦ With a 2 mm drill hole there will be a distance of 2 mm to the outer edge of the dental arch, (with a 1.6 mm drill there will be 2.2 mm distance).

⇒ Push the dental arch to the outer edge of the first marking ring (Fig. 6.2).

⇒ Start the second drill hole.

♦ This will then create a distance of 3 mm between the drilling holes.

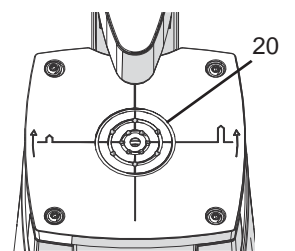


Fig. 5

In general, the total outer diameter (pin + sleeve) is between 2.5 - 4 mm.  
This leaves you a margin of 1 - 2 mm between the sleeves (Fig. 6.3).

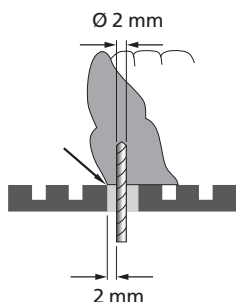


Fig. 6.1

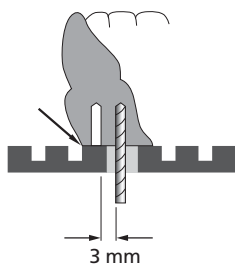


Fig. 6.2

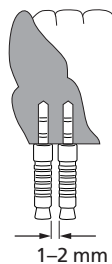


Fig. 6.3

## 5.4 Changing the Working Position

- ⇒ Switch the unit off and disconnect from the power supply.
- ⇒ Lay the unit on its side.
- ⇒ Loosen and remove the wing nut (21).
- ⇒ Remove the base (5) and turn 180° then replace it again.
- ⇒ Check that the base is correctly seated and aligned with the housing.
- ⇒ Tighten the wing nut by hand (no tools required!).
- ⇒ Stand the unit back up.

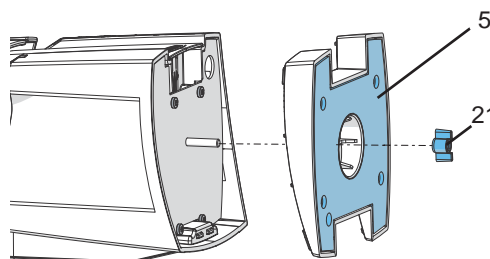


Fig. 7

## 5.5 Changing the Drill

- ⇒ Switch the unit off and disconnect from the power supply.
- ⇒ Lift the drilling table (2) up to its top position (6).
  - ♦ The drilling table will click into place at the upper stop position.
- ⇒ Brush the dust residues into the Dust Drawer or remove them by knocking gently (4, Fig. 1),
- ⇒ and pull the Dust Drawer out by its lower edge.
- ⇒ Pull off the dust protection hood (11, Fig. 1).
- ⇒ Press the spindle lock (7, Fig.1) and turn the drill jig (22) until the spindle lock clicks into place.
- ⇒ Continue to press the spindle lock.
- ⇒ Loosen the drill jig by hand.
- ⇒ Remove the drill bit.
- ⇒ Insert the new drill bit as far as it will go into the chuck.
- ⇒ Tighten the drill jig by hand (no tools required!).
- ⇒ Replace the dust protection hood.

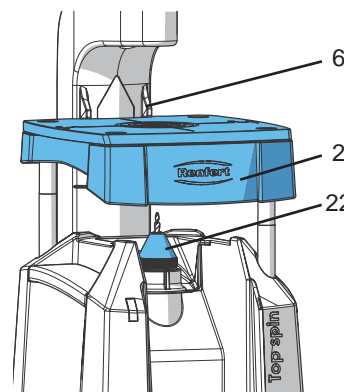


Fig. 8



**If the drill bit is difficult to remove, the chuck can be loosened by applying brief pressure to the drill bit. It can then be easily taken up and out.**

## 5.6 Adjusting the Drilling Length

A drill bit with stop (a threaded pin) underneath the chuck prevents the drill bit from slipping down into the chuck during drilling, causing the drill holes to be shorter. The drill tip must lie at least 5 mm below the drill table surface so that the drill motor can reach sufficient rpm for drilling. For this reason, when a drill bit which is longer than 37 mm is used, the drill stop length must be adjusted using the Allen key supplied (10).



**The drill stop adjustment is designed to be set just once per drill length, and is not intended for frequent re-setting.**



**When different drill bit lengths are used, the adjustment must be set according to the longest drill bit.**

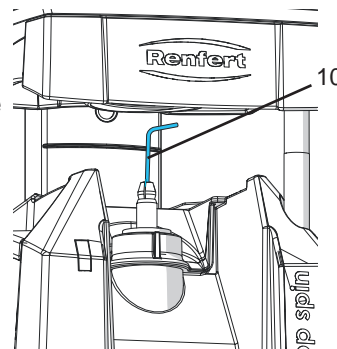


Fig. 9



**The drill hole depth is set exclusively by adjusting the depth stop (see section 5.2).**

- ⇒ Switch unit off and disconnect from the power supply.
- ⇒ Remove the drill bit (see section 5.5 “Changing the Drill”).  
The chuck should not be removed; this can be used as a guide for the Allen key.
- ⇒ Press the spindle lock (7, Fig. 1) and turn the drilling spindle until the spindle lock clicks into place.
- ⇒ Continue to press the spindle lock.
- ⇒ Using the supplied Allen key (10) turn the drill stop back until the drill bit tip is at least 5 mm below the drill table surface.
  - ◆ A single turn adjusts the drill stop by 0.45 mm.
- ⇒ Check the setting.
  - Insert the drill; it is not necessary to tighten.
  - Press the table down to the marked groove (23) in the laser arm.
  - The drill bit tip must not protrude above the table level.
- ⇒ If necessary, correct the setting.

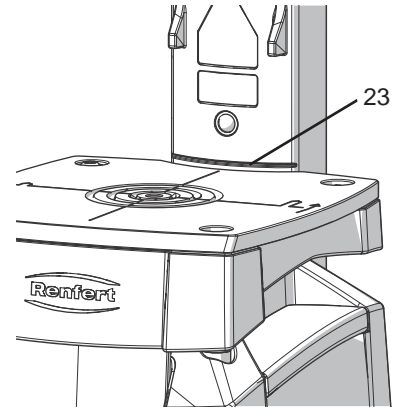


Fig. 10



**If, due to frequent adjustment, the drill stop is no longer sufficiently secure, the drill slips down in the chuck during drilling or the drilled holes are no longer the required depth, the threaded pin can be exchanged for the replacement included in delivery.**

## 5.7 Drilling into Epoxy-Resin Models

- ⇒ Insert a conical acrylic drill (see section 5.5).
- ⇒ **DO NOT** put the dust hood on (11, Fig. 1) on.
- ⇒ If necessary, adjust the drill stop (see section 5.6).
- ⇒ Set the drill depth (see section 5.2).
- ⇒ Carry out trial drilling.
- ⇒ If necessary, re-adjust the drill depth (1 click = 0.1 mm).



**Remove the drilled shavings from the drill on a regular basis.**



**When drilling into acrylic or epoxy resin, if the drill is pressed down too quickly, it may become stuck and stop.**

**Find the correct speed through trial and error.**

If the drill becomes stuck because the drilling table was pushed down too quickly:

- ◆ the drilling motor will switch off
- ◆ the operating display will blink (3, Fig. 1) briefly
- ◆ the drilling motor is switched back on after 1 second with a low rpm, until the drilling table is back in its original position.

If the drill bit is not released after this procedure, continue as follows:

- ⇒ Disconnect from the power supply
- ⇒ Press spindle lock (7, Fig. 1) and turn base plate until the spindle lock clicks into place.
- ⇒ Continue to press the spindle lock.
- ⇒ Turn the drill bit slightly backwards and then slightly forwards to release from the base plate.

## 6. Cleaning / Maintenance



Inside the extractor there are small parts which require maintenance.  
Opening the device, other than for the processes described below, is not permissible!

Clean the unit using only a damp cloth.



**Do not use any scouring cleaning agents or those containing solvents.**

### 6.1 Emptying the Dust Drawer

The drilling dust passes down the sloped sides of the housing into the Dust Drawer.

To empty the Dust Drawer:

- ⇒ Lift the work table up as far as it will go.
  - ◆ The work table will click into position.
- ⇒ Brush the dust residues into the Dust Drawer or remove them by knocking gently (4), and pull the Dust Drawer out by its lower edge.
- ⇒ Empty the Dust Drawer.
- ⇒ First insert the upper part of the Dust Drawer into the housing and then press the lower part in.
  - ◆ The Dust Drawer will click into place.



***If the unit is in an angled working position, it must be tipped backwards in order to remove the Dust Drawer.***

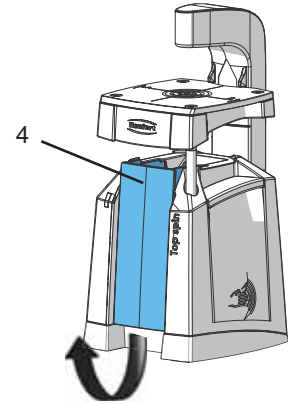


Fig. 11

### 6.2 Cleaning the Clamping Mechanism

Switch the unit off and remove the power supply.

- ⇒ Lift the work table up as far as it will go.
  - ◆ The work table will click into position.
- ⇒ Brush the dust residues into the Dust Drawer or remove them by knocking gently (4. Fig. 1), and pull the Dust Drawer out by its lower edge.
- ⇒ Pull off the dust protection hood (11, Fig. 1).
- ⇒ Press the spindle lock (7, Fig.1) and turn the drill jig (22, Fig. 8) until the spindle lock clicks into place.
- ⇒ Continue to press the spindle lock.
- ⇒ Loosen the drill jig by hand.
- ⇒ Remove chuck.
- ⇒ Clean the drill jig and chuck.

### 6.3 Spare Parts

You can find components subject to wear and their item numbers in the spare part list at the end of these instructions for use.

Details on the serial number, manufacturing date and type of device can be found on the type plate.

## 7. Trouble Shooting Guide

Fault	Cause	Solution
<b>It is not possible to adjust the drill length, as the Allen key cannot be used.</b>	<ul style="list-style-type: none"> <li>The hexagon socket is full of drilling dust.</li> </ul>	<ul style="list-style-type: none"> <li>Remove drill jig and chuck and use a pointed instrument to remove the drilling dust from the hexagon socket.</li> </ul>
<b>The unit does not switch on.</b>	<ul style="list-style-type: none"> <li>The sensor surface has been touched too briefly or too lightly.</li> </ul>	<ul style="list-style-type: none"> <li>Place the palm of your hand onto the marked surface for approximately 1 second. It is not necessary to use any pressure.</li> </ul>
<b>The drilling depth suddenly changes.</b>	<ul style="list-style-type: none"> <li>The drill bit is not sufficiently fixed in place; it stops during drilling and therefore alters the drill stop depth.</li> <li>The coating on the drill stop (threaded pin) is worn out..</li> </ul>	<ul style="list-style-type: none"> <li>Re-set the drill stop (see section 5.6); tighten the drill jig by hand (without tools).</li> <li>Insert replacement threaded pin (see last page of the instructions for use).</li> </ul>
<b>The drill bit does not turn.</b>	<ul style="list-style-type: none"> <li>The shaft diameter of the drill bit is too small.</li> </ul>	<ul style="list-style-type: none"> <li>Use a drill bit with the correct shaft diameter size (see section 8 Technical Data). <b>Do not</b> turn the chuck further with tools!</li> </ul>
<b>The drilling is not effective.</b>	<ul style="list-style-type: none"> <li>The drill bit is worn.</li> </ul>	<ul style="list-style-type: none"> <li>Replace the drill bit.</li> </ul>
<b>The drill holes are too big or not round.</b>	<ul style="list-style-type: none"> <li>The drill jig is not tight enough.</li> </ul>	<ul style="list-style-type: none"> <li>Tighten the jig by hand.</li> </ul>
<b>The unit switches off abruptly and the operation display blinks briefly.</b>	<ul style="list-style-type: none"> <li>The model was pushed too hard into the drill bit.</li> </ul>	<ul style="list-style-type: none"> <li>Depress the drill table quickly but not suddenly.</li> </ul>

## 8. Technical Data

Voltage	230 V
Permissible mains voltage	100 - 240 V
Mains frequency	50 / 60 Hz
Power consumption during drilling	< 12 W
In stand by mode	< 0.7 W
Laser	
Laser class	2
Wavelength	630 - 680 nm
Power output P0	max. < 1 mW
Acoustic pressure according to DIN EN ISO 11202	LpA < 70 dB (A)
Measurements (height x width x depth)	330 x 153 x 175 mm / [12.99 x 6.02 x 6.89 inches]
Permissible drill shaft diameter	3.00 mm + 0 / - 0.03 mm
Total drill length (min. - max.)	34 - 46 mm
Weight, approx.	4.0 kg

## 9. Warranty

Provided the unit is properly used, Renfert warrants all components for **3 years**.

Warranty claims may only be made upon presentation of the original sales receipt from the authorized dealer. Components subject to natural wear as well as consumables e.g. filters, pinch valve, seals, motor, etc. ...) are excluded from this warranty.

The warranty is voided in the case of improper use; failure to observe the operating, cleaning, maintenance and connection instructions; in case of independent repairs or repairs by unauthorized personnel; if spare parts from other manufacturers are employed, or in case of unusual influences or influences not in compliance with the utilization instructions.

Warranty service shall not extend the original warranty.

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## 10. Disposal Information

### 10.1 Disposing of the Unit

The unit must be disposed of by an authorized recycling operation. The selected firm must be informed of all possible health hazardous residues in the unit.

#### 10.1.1 Disposal Instructions for countries in the EU

To conserve and protect the environment, prevent environmental pollution and improve the recycling of raw materials, the European Commission adopted a directive that requires the manufacturer to accept the return of electrical and electronic units for proper disposal or recycling.



***Within the European Union, units with this symbol should not therefore be disposed of in unsorted domestic waste.***

Please contact your local authorities for more information on proper disposal.