

EN  
Operating and  
Technical Manual

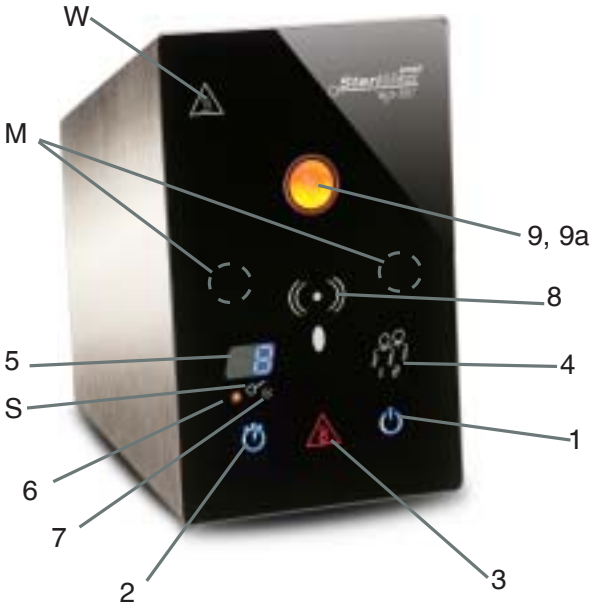


**SteriMax** *smart*

**Inoculation Loop - Sterilizer**



Read these Operating Instructions carefully to familiarize yourself with the product before using. Keep the manual in a safe place for future reference.



- 1 - On/Off symbol
- 2 - Timer symbol
- 3 - Residual heat display
- 4 - User display
- 5 - Timer display
- 6 - Sterilization time symbol (sun)
- 7 - Cooling-down time symbol (snowflake)
- 8 - IR- sensor
- 9 - Annealing tube / Quartz glass tube
- 9a - Sterilization orifice
- S - Status display: sterilization progress
- W - Warning symbol "Hot Surface"
- M - Magnets (inside) for optional tray

- 10 - Ventilation grilles
- 11 - Fan
- 12 - Drill hole for replacing annealing tube
- 13 - Holding device for inoculating loop holder
- 14 - Settings menu button
- 15 - Fuse holder
- 16 - Power socket
- 17 - Power switch
- 18 - Connector
- 19 - Power plug
- 20 - Power cable



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## Scope of delivery

### **SteriMax smart Inoculation Loop Sterilizer** 230V / AC Art.-No.: 4.001.000

Infrared light technology

- 1 quartz glass annealing tube,  
installed in the device
- 1 replacement quartz glass annealing tube (**R1**)
- 1 inoculation loop holder (**R2**)
- 1 Ø 3 mm inoculation loop (**R2a**)
- Holding device for 3 WLD-TEC  
inoculating loop holders (**R3**)
- Power cable (**R4**)
- 2 year warranty



## Use

The **SteriMax smart** infrared inoculating loop sterilizer is ideal for laboratory use for sterilizing inoculating loops, tweezers and micro-instruments made of heat resistant materials such as stainless steel or platinum-iridium alloys.

## Safety precautions



**All users who have been assigned to use this device must read and understand this manual or have been instructed by a competent person in such a way that they can use this device without causing danger.**

- **When unpacking, check for possible shipping damage and do not operate if there is visible damage.**
- **Operate the unit only on a stable, non-slip and level surface.**
- **Do not operate the device near flammable liquids, materials or in potentially explosive areas.**
- **Caution: Never insert instruments or objects where flammable liquids or material adhere to these instruments or objects into the annealing tube (9/9a).**
- **Operating conditions: Operating temperature 5°C to 40°C. Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.**
- **Make sure that the unit does not come in contact with water or other liquids as long as the plug is in the power socket, especially if you use it in the laboratory near water or liquids.**

## Safety precautions

- Using a two-pin AC adapter / connecting cable is NOT recommended.



Make sure that during operation the power cable (20) never gets wet or damp. Locate the cable so that it is not trapped, jammed or otherwise damaged. If the power cable (20) or the plug (19) is damaged, the cable must first be replaced before using this device.

- Do not cover the ventilation grilles and cooling fans on the back of the unit.
- Never insert plastic inoculating loops or objects with a temperature-resistance of less than 1200°C into the annealing tube (9/9a).



Never hold fingers or other parts of the body on or in the sterilization orifice (9a). Danger of burns!



If the IR hologen lamp is illuminated, do not look directly into the sterilization orifice (9a). Distance eye > 200 mm and distance skin > 30 mm. Never operate the device without the quartz glass annealing tube in place (9)!

- Only use original quartz glass annealing tube.



Only remove the annealing tube (9) after it has cooled down. Even some time after use, the sterilization orifice (9a) and annealing tube (9) are still hot. Danger of burns! Allow the unit to cool (apt. 10 min.) and shut it down before cleaning, disinfection, maintenance or transport.

- After cleaning, let the annealing tube (9) dry first before reinstalling.
- Do not handle the annealing tube with bare hands. Grease or other dirt can be removed with a soft cloth with alcohol.
- After using the device or if it is unused for longer periods, turn off the power at the power switch (17).



The upper part of the glass front can become hot if the device is in continuous use.



In the event of faults or before opening the device, remove the mains plug (19) from the power socket.



Keep all equipment and items that can be damaged by a magnetic field (such as credit & debit cards, data disks, mechanical watches, etc.) well away from the magnetic surfaces of the glass front.

(For example minimum distance to the glass front (M):  
Pacemaker 40mm, credit card 32 mm).

## 1. Initial operation

### 1.1 Annealing tube

Upon delivery, the quartz annealing tube (**R1**) is already installed in the sterilization orifice (**9a**). **Remove the protective foil and the adhesive warning label before first use. Never operate the device without the quartz annealing tube (9) in place!**

### 1.2 Power connection

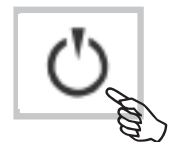
Plug the power cable (**20**) using the connector (**18**) into the power socket (**16**) on the back of the device. Insert the power plug (**19**) into a live power outlet (230V AC).

## 2. Operation

This Section describes switching on and off the device and the touch operation of the glass front panel.

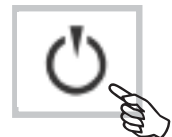
### 2.1 Switching on the device

1. Switch on the device using the power switch (**17**) on the rear panel. **(Switch position "I")**
2. Switch off the device using the power switch (**17**) on the rear panel **(switch position "0")**.



### 2.2 Switching off the device

1. The device is switched off by touching the **On / Off symbol (1)** on the glass front for more than 2 seconds.
2. Switch off the device using the power switch (**17**) on the rear panel **(switch position "0")**.



- i** When you switch off, the respective settings are saved.  
Depending on the residual heat, the fan may still be running.

### 2.3 User selection function


The user can select between "User 1" or "User 2" by briefly touching the **On / Off symbol (1)**. The current user is indicated by the illuminated number 1 or 2.

- i** Both user accounts store the respective parameters depending on the user.



## 2.4 Selecting the sterilization time and cooling time reminder

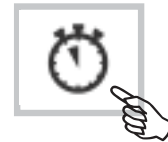
By briefly touching the **timer symbol (2)**, the user can choose between sterilization time (orange sun) **(6)** and cooling time reminder (blue snowflake) **(7)**.

 After selecting the cooling time reminder (snowflake), if the time is not changed within 2 seconds, the device returns automatically to the sterilization time (sun).



## 2.5 Setting the sterilization time (sun) 5 sec. - 10 sec.

The sterilization time can only be adjusted when sterilization is not enabled. Keep pressing the **timer symbol (2)** until the desired sterilization time is selected. The last displayed sterilization time is saved.  
**(Factory setting: Users 1 and 2, 10 sec.)**



## 2.6 Setting the cooling time reminder (snowflake) 0 sec. - 25 sec.

The cooling down time can only be adjusted when sterilization is not enabled. By briefly touching the **timer symbol (2)**, the display jumps from the sun **(6)** to the snowflake **(7)**.

Then keep pressing the **timer symbol (2)** until the desired cooling down time is selected. The last displayed cooling down time is saved.

**(Factory setting: 0 seconds = "-")**



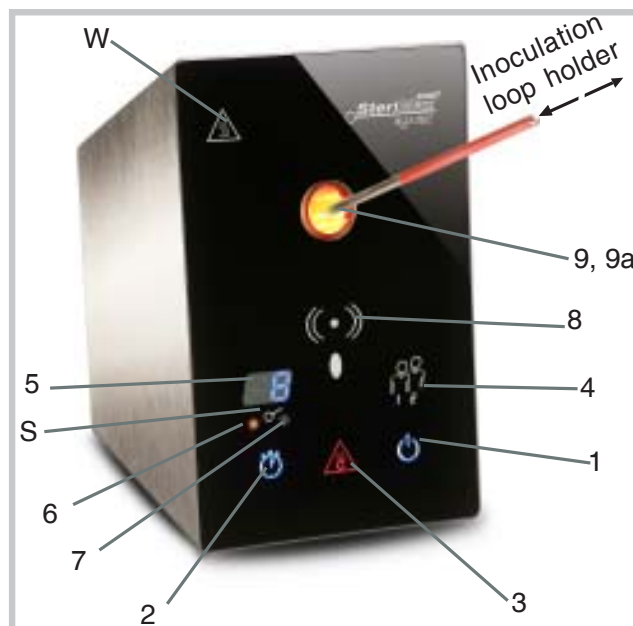
### 3. Sterilizing the instrument

#### 3.1 Starting sterilization

Sterilization is started automatically by inserting an instrument (such as an inoculating loop with holder) into the orifice of the annealing tube (9, 9a). Here, the user's hand must be within the detection range of the IR sensor (8). At the same time the timer display (5) starts, and indicates the remaining sterilization time.

Hold the instrument in the sterilization orifice until the sterilization time has expired.

After expiration of the time set, sterilization stops automatically. The status display (S) shows the course of the sterilization process.




Then remove the sterile instrument from the annealing tube.


The blue snowflake (7) illuminates and cooling down time starts. After the cooling time (5) has expired, the device automatically switches back to the sterilization time display (orange sun) (6).

**Regardless of the cooling time, the sterilizer is ready for use again after 3 - 5 seconds.**

**i** If the buzzer is switched on, a warning tone sounds after the cooling time has expired. If a new sterilization is started before the expiry of the cooling time, the cooling down timer is stopped. If no cooling time is selected, the timer remains enabled for the sterilization time.

**i** The sterilization process can be stopped prematurely by briefly touching the **On / Off symbol (1)** or the **timer symbol (2)**.

 Never hold fingers or other parts of the body on or in the sterilization orifice (9a). Even some time after use, the sterilization orifice (9a) and the annealing tube (9) are still hot. Danger of burns!

 If the halogen lamp is illuminated, do not look directly into the sterilization orifice (9a).


#### 3.2 Thermocontrol

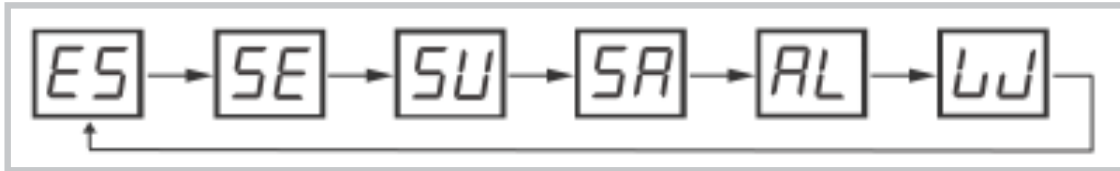
Depending on the frequency of sterilization, the thermocontrol makes use of the residual heat, thus shortening the next sterilization automatically and dynamically by up to 5 seconds.



## 4. Settings menu

### 4.1 Settings

The settings menu is activated by briefly pressing the button (14)  on the back of the device.



By briefly touching the **timer symbol (2)**, the user can scroll through individual menu items:

Settings menu:

ES - Sterilization at start-up ON / OFF

SE - Sensor range 1 - 8


SU - Buzzer ON / OFF

SA - Stand-by time 15, 30, or 60 min.

AL - Insertion mode ON / OFF

W - Factory default settings

Exit the settings menu by briefly pressing the button (14) on the back of the device.

-  After selecting the settings menu, if the settings are not changed within 10 seconds, it automatically returns to the main display.  
If the "Settings Menu" (14) button is pressed during sterilization, the sterilization process is stopped and the settings menu is called up.

### 4.2 Sterilization at start-up

This is used to sterilize the quartz glass tube after switching on the device.

The configured sterilization time is used.

Select the "ES" setting by briefly touching the **timer symbol (2)**.

Keep the **timer symbol (2)** pressed and select ON ("1") or OFF ("-") by releasing.

**(Factory setting: OFF = "-")**



### 4.3 Sensor range

In this menu item, the sensor range can be set to 8 different levels. This function is useful to match activation of the sensor to the length of the instruments.

Select the "SE" setting by briefly touching the **timer symbol (2)**.

Keep the **timer symbol (2)** pressed and select range (1 - 8) by releasing.

Sensor range Level 1 = near / Level 8 = far

**(Factory setting: Level 4)**



#### 4.4 Buzzer

If the buzzer is switched on, an audible signal sounds after the cooling time has expired.

Select the **"SU"** setting by briefly touching the **timer symbol (2)**.

Keep the **timer symbol (2)** pressed and select ON ("1") or OFF ("-") by releasing.

**(Factory setting: ON= "1")**



**i** If no cooling time is selected, the buzzer is automatically switched off.

#### 4.5 Stand-by time

If no sterilization is started, or any other settings made during the selected stand-by time, the device switches itself off automatically, thus preventing unwanted sterilization being activated during work breaks, for example.

This safety feature can be set to 15, 30 or 60 min.

Select the **"SA"** setting by briefly touching the **timer symbol (2)**.

Keep the **timer symbol (2)** pressed and select 15, 30 or 60 min by releasing.

**(Factory setting: 15 min.)**



#### 4.6 Insertion mode

This function allows the user to leave the instrument in the sterilizing orifice without holding it. After sterilization is complete, the instrument can be removed without sterilization being restarted.

Select the **"AL"** setting by briefly touching the **timer symbol (2)**.

Keep the **timer symbol (2)** pressed and select ON ("1") or OFF ("-") by releasing.

**(Factory setting: Off = "-")**



#### 4.7 Factory setting

The factory setting will reset the unit to its factory default state. Resetting affects all parameters. Select the **"W"** setting by briefly touching the **timer symbol (2)**.

Keep the **timer symbol (2)** pressed and change from OFF ("-") to ON ("1") by releasing. The device is now back in its configuration as delivered and switches off automatically.

**(Factory setting: Off = "-")**



### 5. Residual heat display

The residual heat display **(3)** lights up red and warns that the sterilizing orifice is hot. The symbol is still displayed even after switching off until the sterilizing orifice has cooled down.

**i** If the power supply to the unit is switched off at the power switch **(17)**, or the power cable is removed, the safety symbol cannot be displayed even if the sterilizing orifice is still hot.




## 6. Cleaning

**Before cleaning the quartz annealing tube, the device or the glass front:**

1. Switch the device off by touching the **On / Off symbol (1)** on the glass front for more than 2 seconds and allow to cool.
2. Switch off the device using the power switch **(17)** on the rear panel (**switch position "0"**).

### 6.1 Cleaning and replacing the quartz annealing tube

The inside of the quartz annealing tube should be cleaned regularly.

Use the handle of the inoculating loop holder **(R2)** (included in the delivery) to push through the drill hole **(12)**  on the rear of the device and push the quartz annealing tube forwards out through the sterilization orifice **(9a)**.

**Use non-alkaline detergent for cleaning.** Fill the quartz annealing tube with appropriate cleaning solution and allow to stand for several hours to loosen burned-on residue. (If necessary acidify in 5% hydrofluoric acid (HF) for 2-3 min). After cleaning the inside of the quartz annealing tube, rinse well with distilled (deionized) water and allow to dry.

To lengthen the quartz annealing tube's life, as a final step we recommend rubbing the outside with alcohol and then only touching it with gloves to re-insert it.

To install, slide the quartz annealing tube with the closed end first into the sterilization orifice **(9a)** until it is fully inserted and is not protruding at the front. When inserting the last 10 mm, use a slight twisting and sliding movement to install the quartz annealing tube in the correct position.



The quartz annealing tube must be clean and dry, inside and outside, before it is installed in the sterilization orifice **(9a)**.



The quartz annealing tube is a consumable item. Check it regularly for damage. Replace it if opacity, cracks, chips or similar are observed. **Art.-No.: 4.000.400**



**Never operate the device without the quartz annealing tube (9) in place!**

### 6.2 Cleaning the glass front

The glass front can be cleaned with commercial glass cleaners and a soft, lint-free cloth.



Never clean the glass front with abrasive sponges or abrasive cleaners because this may cause damage to the surface.

### 6.3 Cleaning the device

**Proceed as in Section 6. Additional remove power cord from the electrical outlet.**

It can be cleaned with a damp cloth and commercially available cleaning agents. Care should be taken when cleaning that no liquid gets inside the unit. It is possible to clean the appliance with a spray-and-wipe disinfectant. The instrument itself must not be sterilized.




Flaming the device is not possible.




After switching off, the fans **(11)** run until the excess heat has been dissipated.

## 7. Fan

Smart fan control ensures that even in continuous operation the temperature of the housing does not rise above 65 degrees. As an additional safety mechanism, there is a mechanical thermal circuit breaker.

 After switching off, the fans **(11)** run until the excess heat has been dissipated.

 Do not cover the ventilation grilles and cooling fans on the unit.

## 8. Error display

### 8.1 Over-temperature protection

"E1" appears on the timer display **(5)**. Switch the device off by touching the **On / Off symbol (1)** on the glass front for more than 2 seconds. A new sterilization process can be only started after switching on after the unit has cooled sufficiently (abt. 10 minutes).




### 8.2 Halogen lamp fault

"E2" appears on the timer display **(5)**. Switch the device off by touching the **On / Off symbol (1)** on the glass front for more than 2 seconds. Only after the device has cooled sufficiently, switch off the device using the main switch **(17)** on the rear panel (**switch position "0"**).



Before opening the device, remove the power plug **(19)** from the power outlet.

 After switching off, the fans **(11)** run until the excess heat has been dissipated.

Now the halogen lamp can be changed. The removal and installation instructions are included with the replacement halogen lamp.

Contact the manufacturer.

**IR halogen lamp, 230V AC: Art.-No.: 4.001.100**

#### **Service adresse:**

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Internet: www.wld-tec.com

## Troubleshooting guide

### The displays do not light up after touching the On / Off symbol (1).

- Switch on at the power switch (17).
- Check the power plug is correctly wired and make sure that it is connected to a live wall socket (230V AC).
- Check the fuse; if the fuse is faulty, it can be replaced.  
To do this, pull out the fuse holder (15).  
Replace the blown fuse with a new one and push the fuse holder back into its socket.  
The device is fitted with a 3.15 Amt protection fuse.  
(The factory provides a spare fuse in the reserve clip in the fuse holder)



Important note: To replace a fuse, unplug the power cable (20) from the power socket (16).



After switching off, the fans (11) run until the excess heat has been dissipated.

### Inoculating loops are not sterilized

Quartz annealing tube is dirty. Please clean and dry the quartz annealing tube or replace if necessary.

**See Section 6.1** Replacement quartz annealing tube: **Art.-No.: 4.000.400**

### The sterilization process only starts every second time it is activated

Insertion mode is enabled. Please switch off.

**See Section 4.6.**

### When the inoculating loop is inserted into the sterilization orifice (9a), the red light does not light up on the sterilizer.

Clean the sensor window (8) or increase the sensor range, if necessary.

**See Section 4.3 and 6.2**

The halogen lamp is faulty and must be replaced. (Error display E2)

**See Section 8.2**

### The unit gets hot, the red light turns off during sterilization.

The thermal circuit breaker is switching the unit off. (Error display E1)

**See Section 8.1**

Check the functioning of the fans. **See Section 7**



# EU-KONFORMITÄTSERKLÄRUNG

## Declaration of Conformity

zu den Richtlinien / following to the Directives: 2014/30/EU, 2014/35/EU, 2011/65/EU, 2006/25/EG  
für Infrarot Impfösen-Sterilisator / for Infrared Loop Sterilizer



Typ / Type 4.001.000

Typ / Type 4.002.000

Typ / Type 4.003.000

### 1. Elektromagnetische Verträglichkeit / *Electromagnetic Compatibility Directive*

1.1 EN 61326-1:2013 Elektrische Betriebsmittel für Leittechnik und Laboreinsatz, EMV-Anforderungen  
*Electrical equipment for measurement, control and laboratory use, EMC requirements*

**Störaussendung:** Elektrische Betriebsmittel der Klasse B, Gruppe 1  
*Generic Emission Standard: Electrical Equipment, class B, Group 1*

**Störfestigkeit:** Industrielle Bereiche  
*Generic Immunity Standard: Industrial areas*

### 2. Sicherheit elektrischer Betriebsmittel / *Security of electrical resources*

2.1 EN 61010-1:2010 Sicherheitsanforderungen an elektrische Mess-, Steuer-, Regel- und Laborgeräte. Teil 1: Allgemeine Anforderungen  
*Safety requirements for electrical equipment for measurement, control, and laboratory use. Part 1: General requirements*

2.2 EN 61010-2-010:2014 Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte. Teil 2-010: Besondere Anforderungen an Laborgeräte für das Erhitzen von Stoffen  
*Safety requirements for electrical equipment for measurement, control, and laboratory use. Part 2-010: Particular requirements for laboratory equipment for the heating of materials*

### 3. Schutz vor optischer Strahlung (Risikofreie Gruppe) / *Security of optical radiation (Risk free group)*

3.1 EN 62471:2008 Photobiologische Sicherheit von Lampen und Lampensystemen  
*Photobiological safety of lamps and lamp systems*



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B. Wartewig  
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Arenshausen, 20.04.2016

## Technical Data

Touch-Operation:	ON / OFF, selection for 2 users sterilization timer 5 - 10 seconds inoculation loop cooling timer 0 - 25 seconds with audible signal (disengageable)
Status display:	optical display of the sterilization progress
IR-Sensor:	sensor range 8-stage adjustable
Thermocontrol:	dynamic sterilization timer, reduces the sterilization time according to the residual heat

## Annealing tube

Quartz glass: **Sterilization temperature**  
750°C - 1000°C (1382°F - 1832°F)

## Safety features

Residual heat display:	indicates a hot annealing tube
Automatic unit switch off:	15, 30 or 60 min.
Temperature monitor:	thermal circuit breaker

## Electrical

Power supply:	220 - 240 V 50/60 Hz 2.6 A
Power consumption:	approx. 600 W / short time (5 - 10 seconds)
Protection class:	IP 20
Heat source:	IR halogen lamp

## Mechanical

Quartz glass annealing tube:	outer-Ø 19 mm, inner-Ø 16 mm, length 112 mm
Casing:	heat resistant glass / stainless steel, UV and solvent resistant
Measurements (w x h x d):	110 x 170 x 180 mm
Weight:	approx. 1800 g

## Licences

CE: EN 61326-1:2013, EN 61010-1:2010, EN 61010-2-010:2014  
EN 62471:2008

EU guidelines: 2014/30/EU, 2014/35/EU, 2011/65/EU, 2006/25/EG

**Protected Design** © DM/082 011

## Warranty

All SteriMax smart are covered under our two-year manufacturer warranty against any manufacture defects in material and workmanship (including IR halogen lamp). Except parts of wear and tear (quartz annealing tube). The WLD-TEC warranty guarantees all SteriMax smart under normal usage conditions and does not cover any damages as a direct result of user misuse or/and abuse. The warranty is void upon any unauthorized servicing, disassembly or modifications.

### Optional accessories

Tray, mobil:	<b>Art.-No.: 6.000.320</b>
Tray, 3 places for left or right side:	<b>Art.-No.: 6.000.341</b>
Instrument support :	<b>Art.-No.: 4.000.350</b>
Inoculation loop holder, stainless steel, length 245 mm:	<b>Art.-No.: 6.000.360</b>
Inoculation loop holder, stainless steel, length 215 mm:	<b>Art.-No.: 6.000.365</b>

### Inoculation loops made of special-stainless steel, wire Ø 0.6mm

Ø 1 mm	<b>Art.-No.: 6.000.371</b>
Ø 3 mm	<b>Art.-No.: 6.000.373</b>
Ø 5 mm	<b>Art.-No.: 6.000.375</b>

### Spare parts

IR halogen lamp, 230 V:	<b>Art.-No.: 4.001.100</b>
Replacement quartz annealing tube:	<b>Art.-No.: 4.000.400</b>



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04/2016