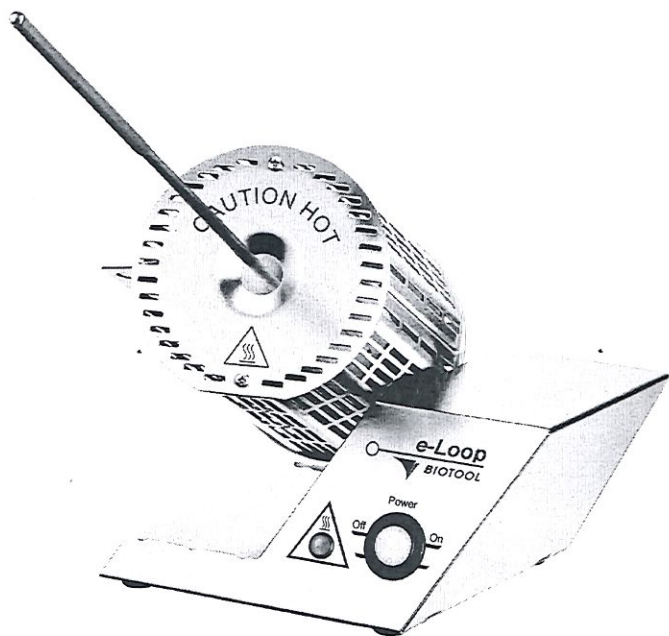


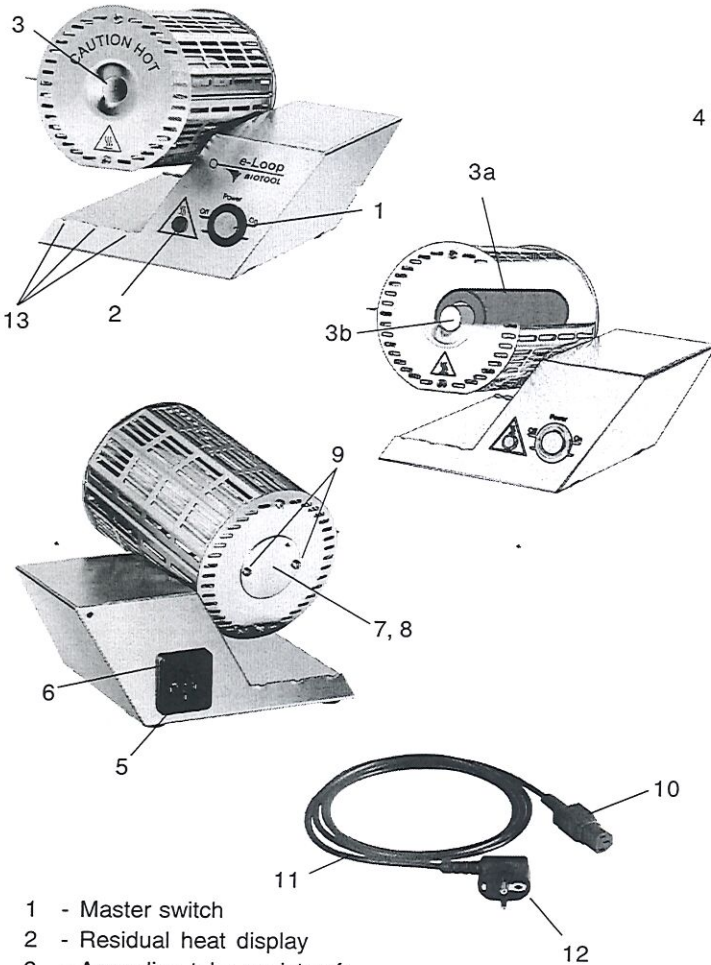
EN Operating and Technical Manual



e - Loop

Annealing without flame!





- 1 - Master switch
- 2 - Residual heat display
- 3 - Annealing tube consists of:
 - 3a: Outer tube: Quartz glass heating element
 - 3b: Inner tube: Ceramic annealing tube
- 4 - Handle
- 5 - 230 V Power supply
- 6 - Fuse holder
- 7 - Splash guard
- 8 - Depth stop made of quartz glass
(inside the ceramic annealing tube (3b))
- 9 - Retaining screw for splash guard
- 10 - Adapter
- 11 - Mains cable
- 12 - Mains plug (plug type may vary for different countries)
- 13 - Tray

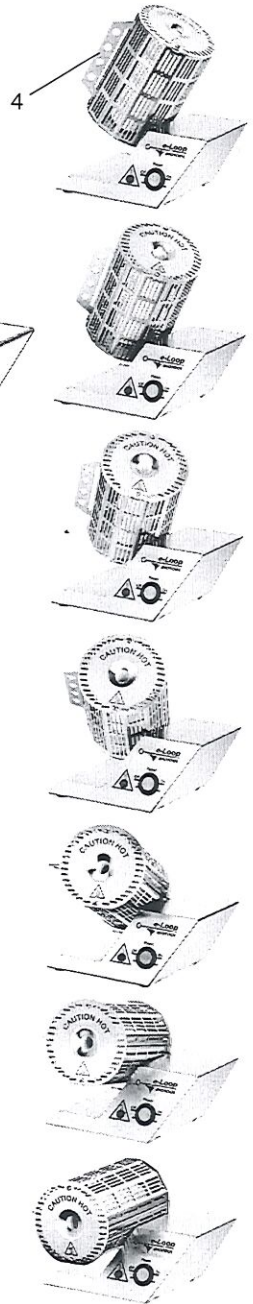


Illustration of the 7 angular adjustments

Please read these operating instructions carefully in order to become familiar with the product prior to its use. For future reference, keep these instructions in a safe place. When passing the device on to a third party, ensure the operating instructions will be part of the transfer! **Application:** Electrical annealing system for inoculation loops, needles, and instruments.

CAUTION: OPERATION OF ANNEALING SYSTEM SHOULD ALWAYS BE SUPERVISED!

General safety instructions:

- When unpacking the device, visually inspect the equipment for transport damages; do not operate the device if damages are visible.
- After each use of the equipment or during longer breaks without supervision, use the master switch (1) to turn off the device.
- Never operate the device next to highly inflammable liquids and/or materials, or inside enclosed rooms, which can be subject to explosion hazards.

Warning - in order to avoid the risk of electric shock and/or possible death, the following is strongly advised:

- As long as the device is connected to the mains, avoid any contact with water or other liquids; this applies in particular while working in the laboratory next to an open source of water or other liquids.
- While in operation, ensure that the mains cable (11) remains dry at all times. Route the cable such as to avoiding pinching or any other kind of damages. If the connecting cable (11) or the mains plug (12) are damaged, it is imperative to replace the cable prior to operating the device.
- After use, always disconnect the mains plug (12) in order to prevent the accidental re-start of the device.
- During malfunctions or when cleaning the device, always disconnect the mains plug (12).
- If the quartz glass heating element (3a) exhibits any cracks, chips or similar, turn off the device and unplug it from the mains. Do not use the device! Replace the heating element before using the device again!
- If the ceramic annealing tube (3b) exhibits any cracks, chips or similar, turn off the device and unplug it from the mains. Do not use the device! Replace the ceramic annealing tube (see paragraph 6) Check also if the quartz glass heating element (3a) is damaged!

Warning – in order to avoid the risk of fire and/or injuries, the following is strongly advised:

- During the operation of the device, its components may get extremely hot. Therefore, only touch the controls or the handle (4) for the adjustment of the device's angular settings.
- Never place your hands or any other body part above the opening of the annealing tube (3).
- Combustible materials may ignite within the immediate area of or inside the annealing tube (3)! Never place the device close to combustible objects and/or materials. Never insert combustible materials or liquids into the annealing tube (3).
- Never cover up the annealing system as long as it is in use or its casing is still hot.
- Only operate the device on a solid, skid-proof and level surface.
- During the heating-up of the annealing tube the display of the residual heat (2) will be delayed. It is possible that the tube's casing is already hot during the heating phase or before the residual heat display is turned on.

SEE ADDITIONAL SAFETY PRECAUTIONS ON PAGE 10

The range: e - Loop for 230 V Art.-No.:LF5.101.000

with 7 angular adjustments

1 inoculation loop holder & inoculation loop

Residual heat display

Tray for 3 instruments

Screwdriver and Mains Cable

Instruction manual and 2-year warranty

1. Initial Start-up:

Caution: It is essential to operate the annealing system only on an even and level surface. Never operate the device next to highly inflammable liquids and/or materials, or inside enclosed rooms which can be subject to explosion hazards. Connect the mains cable (11) with adapter (10) to the device's 230 V power supply (5). Plug in the mains plug (12).

2. Turning the device OFF/ON:

The device may be turned off and on, using the master switch (1). As soon as the device is turned on, a green light will illuminate the master switch (1). After the device has been turned on, the annealing tube (3) will require several minutes to heat up to a temperature of 900 - 950°C.

3. Residual heat display:

The red residual heat display (2) warns that the casing of the annealing tube is hot. The residual heat display (2) remains illuminated after the device has been switched off and until the casing of the annealing tube has been cooled off.

Caution: During the heating-up of the annealing tube, the display of the residual heat (2) will be delayed. It is possible that the tube's housing is already hot during the heating phase or before the residual heat display (2) is turned on. If the power supply to the device is interrupted, the residual heat display (2) will extinguish, even if the casing of the tube is still hot!

4. Sterilising loops and needles:

Carefully insert the loop or needle at least halfway into the annealing tube (3) to avoid residual contaminants. The loop or needle will be sterilized in 5 to 7 seconds and starts to glow. Loops or needles when not in use can be placed on the tray (13).

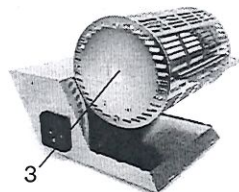
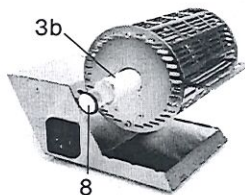
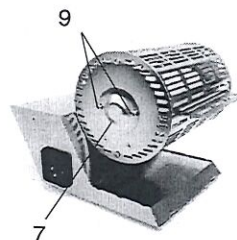
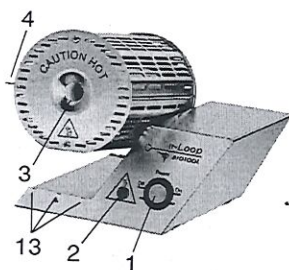
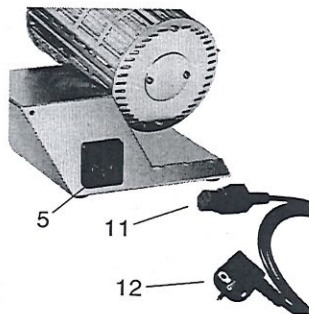
5. Angle adjustment:

The device is equipped with an angle adjustment mechanism that can lock itself into 7 different positions. The angles can be easily set, simply adjust with the handle (4) on the casing of the annealing tube. The various angle settings are shown in the figure on page 2.

6. Cleaning of the quartz glass heating element (3a) and changing / cleaning of the ceramic annealing tube (3b)

Caution: Before cleaning, turn off the device, wait for it to cool down and unplug it.

For cleaning purposes the ceramic annealing tube (3b) can be

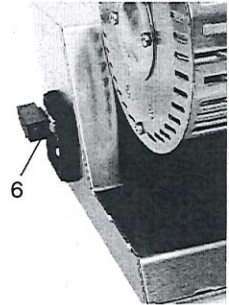


*tested with inoculation loops Biotool Art.-No: LF6.000.373

removed easily at the rear side of the unit. For this purpose unscrew the retaining screws (9) of the splash guard (7) on the back of the device. Remove splash guard (7) and take out depth stop (8). Now pull out carefully the ceramic annealing tube (3b)

The annealing tube is made of ceramic and can be easily cleaned while slightly wet, using a commercially available non-alkali cleaning agent. While the ceramic annealing tube (3b) is removed, the heating element made of quartz glass can be easily cleaned as well, slightly wet, using a commercially available non-alkali cleaning agent. Pipe cleaners or bottle brushes are recommended for the cleaning. After the cleaning, re-insert the ceramic annealing tube (3b) and the depth stop (8) into the quartz glass heating element and reinstall the splash guard (7).

Warning: Do not heat up the unit without assembled ceramic annealing tube (3b)!



7. Replacing the fuse:

Caution: When replacing the fuse, first unplug the device and remove the mains cable (11) from the 230V power supply (5).

The device is equipped with a 1.25A fuse (Flirk). Always replace a defective fuse!

To do this, pull out the fuse holder (6). (For easy removal of the fuse holder, use a suitable tool and carefully pull on the small tab, intended for this purpose).

Replace the blown fuse with a new one and push the fuse holder (6) back into its original position.

(A spare fuse has been provided and can be found in the retainer (6a) of the fuse holder (6))



8. Holder installation (optional):

Caution: Before installing the holder turn off the device, wait for it to cool down and unplug it.

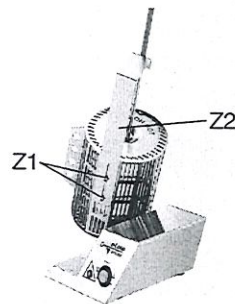
Two optional holders are available with the e - Loop:

1. Holding device, specially developed for Biotool inoculation loop holders, made of stainless steel, available for all angle settings.

Art.-No.: LF5.000.100

2. Support for all inoculation loop holders, made of stainless steel; can only be used in the first three angle settings.

Art.-No: LF5.000.101



Both holders will be attached to the underside of the annealing tube's casing using two short screws (included with delivery of the holder). When installing the holders, first push the screws (Z1) through the slots of the holder (Z2) and **slightly tighten the screws** in the tapped hole on the underside of the tube's casing. Subsequently, insert an inoculation loop holder and slide the holder into the desired position. Tighten the screws (Z1).

9. Warranty:

All e - Loop sterilizer are covered under our one-year manufacturer warranty against any manufacture defects in material and workmanship. Except parts to wear and tear (for example heating element & annealing tube).The warranty guarantees all e - Loop sterilizer 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.

Technical manual:

1. Replacing the quartz glass heating element:

The long-lasting quartz glass heating element is to a large extent maintenance and wear-free. However, when working over a longer period at higher voltages, abrasive substances may dirty or damage the white insulation material of the heating element; in this case, replacement may be required.

Caution: For safety reasons the entire quartz glass heating element has to be replaced if the quartz glass heating element (3a) becomes damaged and cracks, chips or similar damages are noticeable.

CAUTION: Only qualified personnel shall remove and/or re-install the quartz glass heating element!
The quartz glass heating element uses 230 V!

1.1 Removal:

Caution: Before removing the heating element, turn off the device, wait for it to cool down and **unplug it**.

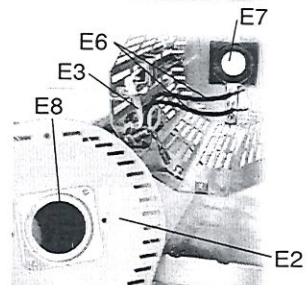
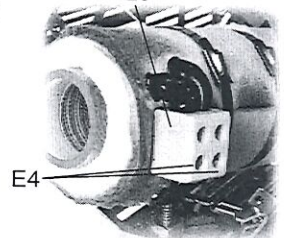
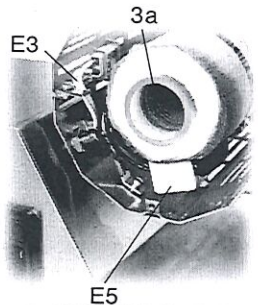
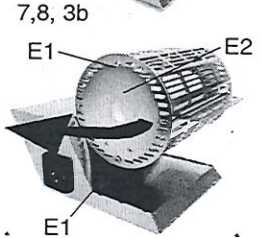
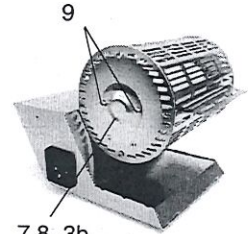
Danger of electric shock!

Remove retaining screws (9) of the splash guard (7) on the back of the device. Remove splash guard (7) and pull out the depth stop (8) and the ceramic annealing tube (3b) (see paragraph 6). Subsequently, remove both screws (E1) from the casing and remove carefully (E2) the rear panel.

Pull the heating element (3a) just a few centimetres out of the casing. While using a suitable screwdriver, loosen both screws (E4) on the power side of the ceramic terminal (E5). Pull both black wires (E6) from the ceramic terminal (E5). Completely remove the heating element (3a) from the casing.

1.2 Installation:

Carefully insert the heating element (3a) into the casing. (Heating element is fragile) Insert both black wires (E6) into the ceramic terminal (E5) of the new heating element (3a). Use a suitable screwdriver to firmly tighten both screws (E4) of the new heating element. The black wiring shall be routed such as to maintain a



minimum distance of 1 - 2 centimetres from the white insulation of the heating element.

Caution: When tightening the screws, ensure to hold the connector piece (E5) in order to prevent it from twisting. Risk of short circuiting!

Now, push the heating element with front end of the quartz glass tube into the front guide (E7) of the casing. Re-install the rear panel of the casing (E2). Ensure to slide the rear guide (E8) over the rear end of the quartz glass tube. At the same time, adjust the casing's wall (E2) to allow for the proper attachment of the casing's screws (E1). Tighten the casing's screws (E1).

Caution: Do not pinch the wiring between the casing's wall (E2) and/or other components of the casing! Do not pull on the connection wire (E3) of the residual heat sensor and do not damage the insulation. Danger of electric shock! If the wires of the residual (E3) have moved, place them again close to the lower casing part.

Finish the installation by re-inserting the ceramic annealing tube (3b) and depth stop (8) into the quartz glass heating element (3a) and attach the splash guard (7) using both screws (9).

Warning: Do not heat up the unit without assembled ceramic annealing tube (3b)!

Qualified personnel only -- Qualified personnel only

Troubleshooting guide

Device does not work.

Ensure the mains cable is connected properly.
(see paragraph 1 / operating manual)

Device does not work.

Check fuse, replace if necessary.
(see paragraph 7 / operating manual)

Annealing tube does not heat up, even though the device is turned on and the master switch's green light is illuminated.

Heating element may be defect. Have it replaced by qualified personnel.
(see paragraph 1 / technical manual)

Replacement Quartz Glass Heating Element

230 V: Art-No. LF5.000.202
(120 V: Art-No. LF5.000.203)
(100 V: Art-No. LF5.000.204)

Replacement Ceramic Annealing Tube

Art-No. LF5.000.205

Notes

Safety Precautions:

- When using the loop holder, avoid leaving the loops and needles within the annealing tube (3) for extended periods of time. Doing so will overheat the loop rest causing a potential safety risk and may damage your loop or needle. Furthermore melted parts can damage the annealing tube and are a safety risk.
- NEVER insert disposable plastic loops or needles into the annealing tube (3)
- **Environmental 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;
- Use of a 2-pronged adapter / mains cable IS NOT recommended.
- **Warning:** Do not heat up the unit without assembled ceramic annealing tube (3b)!

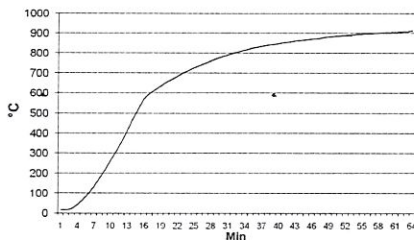
Technical data:

Mechanical

Quartz glass heating element:	Ø 26.6 mm
Ceramic annealing tube:	Ø 20 mm
Length of ceramic annealing tube:	161 mm
Angular adjustments:	7
Weight:	1060 g
Measurements (w x h x d):	175 x 129 x 169 mm
Casing:	Stainless steel
Heating Element:	Quartz Glass
Annealing tube:	Ceramic, 60% Al ₂ O ₃
Heating Element Insulation:	MgO 19-26%, SiO ₂ 72-77%

Electical

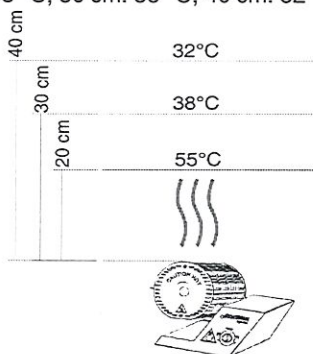
Sterilization temperature:	900 °C - 950 °C (1650 °F - 1742 °F)
Power supply:	220 - 240 V / 50 Hz / 225 W
Fuse:	1.25 A (F)
Protection class:	I
Heating up time:	700°C / 12 min 800°C / 16 min



Sterilization time:
Heat transfer:

5 - 7 seconds*

a stainless steel surface, located above, warms up at motionless air and at an ambient temperature of 20°C
Distance: 20 cm: 55 °C, 30 cm: 38 °C, 40 cm: 32 °C



Environmental 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

Safety feature

Residual heat display

Licences

CE:
EU guidelines:

EN 61326-1, EN 61010-1, EN 61010-2-010
2014/30/EU, 2014/35/EU, 2011/65/EU



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