

EN Instruction manual



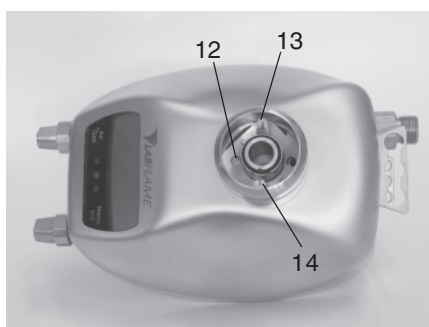
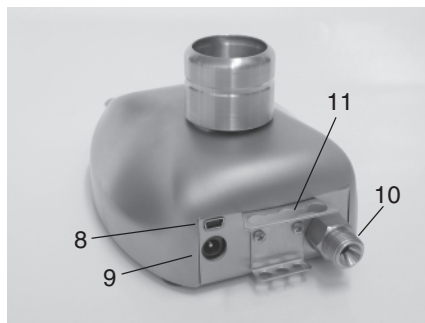
Safety Enhanced
Laboratory Gas
Burner





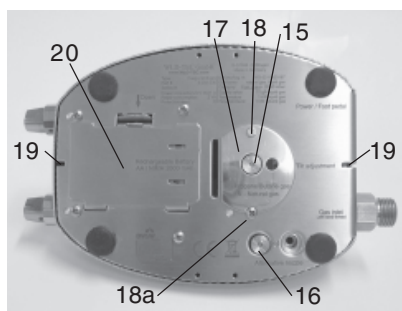
- 1 - Function knob
- 2,3- Dual knob: 2 - Gas adjustment
3 - Air adjustment
- 4 - Multifunction Display (LCD)
- 5 - Power lamp
- 6 - IR-Sensor
- 7 - Burner head
- 7a - Flame orifice

- 8 - Connector for foot pedal
- 9 - Power connector for 9 V DC
- 10 - Gas inlet R 1/4" L gas adapter
(left hand thread)
- 11 - Holding device for
inoculation loop holder



- 12 - Burner head screw
- 13 - Monitor electrode
- 14 - Ignition electrode

- 15 - Active nozzle
- 16 - Nozzle holder for
alternative gas
- 17 - Cover of the burner shaft
- 18 - Retaining screw for
cover of the burner shaft
- 18a- Position screw for the cover
- 19 - Guide slots for tilt adjustment
- 20 - Battery compartment cover



- 21 - 2 x Mignon rechargeable batteries (AA)

Read these instructions carefully to familiarize yourself with the product. Please retain these operating instruction for future reference.

Use: Safety laboratory gasburners for heating and flame sterilizing. Ideal for use in cleanroom workbenches and the laboratory.

**WARNING: DO NOT LEAVE THE ACTIVATED LABORATORY
GAS BURNER UNATTENDED!**

SAFETY PRECAUTIONS:

- On unpacking the unit, check for possible transportation damages. Do not operate the unit if damages are visible.
- Use- and warning instructions of NiMH rechargeable batteries see page 14.
- Insert only the recommended, rechargeable batteries (Page 13), i.e., no other battery type and no non-rechargeable batteries, because health hazards and physical injuries cannot be ruled out otherwise.
- Before replacing the battery ensure that the unit and the gas supply are turned off.
- After use or for any longer period of time without attendance, turn the main gas supply off and turn off the gas burner at the function knob (1).
- Pay attention to your relevant rules for using liquid gas.
- Only use DVGW safety tubings with thread or tubing connectors. Check the condition of the tube/hose frequently. Depending upon type of tube/hose, hose clamps are required.
- All gas connections must be adequately tightened with two wrenches. Ensure gas proofness with a suitable test fluid / equipment. DO NOT seal the swivel nut with Teflon tape etc.
- Keep hands or other parts of the body away from the burner orifice (7a).
- Do not operate the unit near flammable liquids or hazardous materials.
- Unattended operation of the unit is not permissible.
- Always work in a well-ventilated area.
- Note that the burner orifice (7a) remains hot after the flame has been extinguished. Do not touch. Can cause burns.
- Allow sufficient time for flame orifice (7a) to cool down prior to cleaning, disinfecting, servicing or transport. Ensure that the unit and the gas supply are turned off.
- Because of the connectors at the back of the unit the backside should not be sterilized with a flame.
- Allow sufficient time for burner head (7) to cool down prior to disassembling.
- Operate the unit with assembled burner head only.
- After cleaning the burner head (7) allow sufficient time to dry before assembling again.
- Keep substances away from the flame orifice.
- Before mounting a nozzle check the O-Ring (25). Replace the sealing if damaged or worn.



The range: Labflame + Art.-No. LF8.004.000

includes IR-Sensor and LC-Display

2 Mignon(AA) rechargeable batteries already inserted in the battery compartment

Adjustable IR-Sensor reaction distance and DoubleClick IR-Sensor (connectable)

4 standard-programs for IR-Sensor and foot pedal with count down display

SCS (Safety Control System)

BHC (Burner Head Control)

Removable and decomposable burner head

Tilt mechanism, right / left (23)

Holding device for 3 inoculation loop holders

Nozzles for natural gas, propane/butane gas

Turbo flame

Wrench 17 mm (21) for gas connection

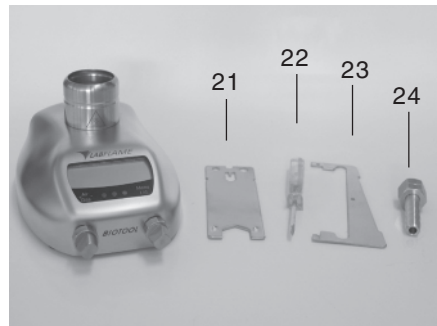
Screwdriver (22) for burner head and cover of the burner shaft

Tubing connector with swivel nut (24)

Power connection

Instruction manual and 2-year warranty

Optional: foot pedal (Art.-No. LF6.000.402)



1. Setup Procedure:

The unit is shipped with the nozzle for natural gas (N) installed.

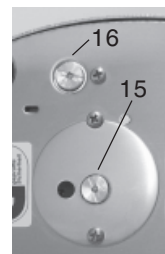
The nozzle must be changed if other gas is to be used.

Replacement procedure: Remove the Nozzle P from the nozzle holder (16) with a coin or the edge of the wrench (21) by turning it counterclockwise.

Remove the active Nozzle N for natural gas (15) in the same way and exchange the nozzles.

ATTENTION: Before mounting a nozzle check the O-Ring (25).

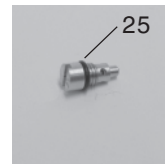
Replace the sealing if damaged or worn (Art.-No. LF8.000.010).



Now you are ready to connect the gas supply to the gas inlet (10).

The correct pressure for natural gas is within the range of 18 - 25 mbar, for propane/butane gas 28 - 57 mbar.

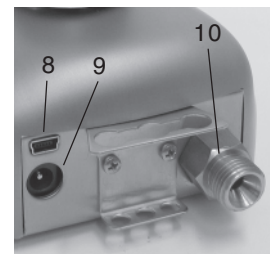
Only use DVGW or other gas approved safety tubings with thread or tubing connectors (24). Check the condition of the tube/hose frequently. Depending upon type of tube/hose, hose clamps are required.



All gas connections must be adequately tightened with the wrench (21) (SW 17mm, included). Ensure gas proofness with a suitable test fluid / equipment. Do not seal up the included tubing connector (24) and swivel nut with Teflon tape etc.

A DVGW-proven or other gas approved pressure regulator (50mbar) must be used for liquid gas.

Pay attention to your relevant rules for using liquid gas.



1.1 Foot pedal connection:

Insert the connection cable of the foot pedal into the socket (8) at the back of the unit (optional, Art.-No. LF4.000.402)

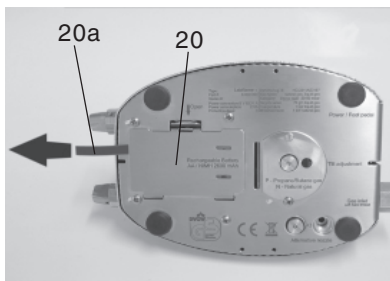
1.2 Electrical connection:

Insert the power cord into the socket (9) on the back panel of the unit, or into the socket of the foot pedal. The default supply must be connected to a voltage source of 100 - 240V / 50/60 Hz.

1.3 Rechargeable NiMH batteries*: transportation lock

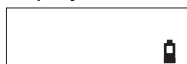
The NiMH rechargeable batteries included in the delivery scope are already charged and inserted in the battery compartment (20) for operation independently of the mains power supply. To operate the device with the batteries, just remove the transportation lock (20a) in the direction of the arrow.

Note: The rechargeable batteries will be discharged to a certain extent after long storage periods. Hence, under certain circumstances, the full number of operating hours may not be achieved during initial use. Please recharge the batteries if necessary after long storage periods (see paragraph 1.4).



1.4 Rechargeable NiMH batteries*: charging

The NiMH rechargeable batteries are charged directly with the help of an integrated electronic charging system in the burner. The batteries are charged as soon as the power cord of the included power supply is inserted into the socket (9). The charging operation can last up to 3 hours depending on the discharged condition of the batteries. The symbol of a battery being filled is displayed during the charging operation as charge control display.



Charging takes place independently of whether the device is on or off.

The device can be used normally during the charging operation.

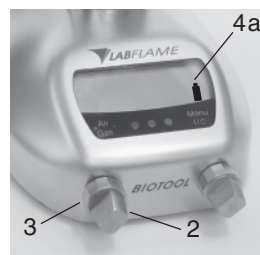
Note: The batteries are charged only if the power cord of the included power supply is inserted directly into the socket (9). If the power supply is connected indirectly over a foot switch (optional) so that the power cord is inserted in the socket of the foot switch, the batteries are not charged for technical reasons.

Note: Information about the optional use of an external battery charger is available in Paragraph 5 on Page 10.

1.5 Rechargeable NiMH batteries*: battery status display

If the device is operated with rechargeable batteries independently of the mains power supply, the battery symbol (4a) appears in place of the menu arrows (4b) after a few seconds. The symbol is shown as proportionally empty, depending on the discharged status of the rechargeable battery. A flashing, fully discharged battery symbol indicates that only a residual use duration of a few minutes remains and the device will be switched off automatically there after. Recharge the rechargeable batteries for further use independently of the mains power supply (see paragraph 1.4).

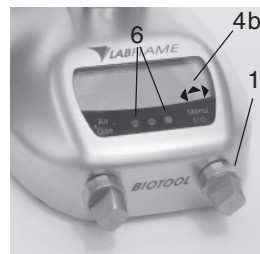
Note: For more information about battery replacement and the optional use of an external charger, please refer to Para 5 on Page 10.



2. Operation: Flame regulation

The flame can be varied in size and intensity by turning the gas knob (2) and adjusting the air knob (3) to suit all requirements.

Attention When operating the unit for the first time or after changing the nozzle, turn the gas adjustment knob (2) two revolutions to the left and turn the air adjustment knob (3) 3-4 revolutions to the left, too.



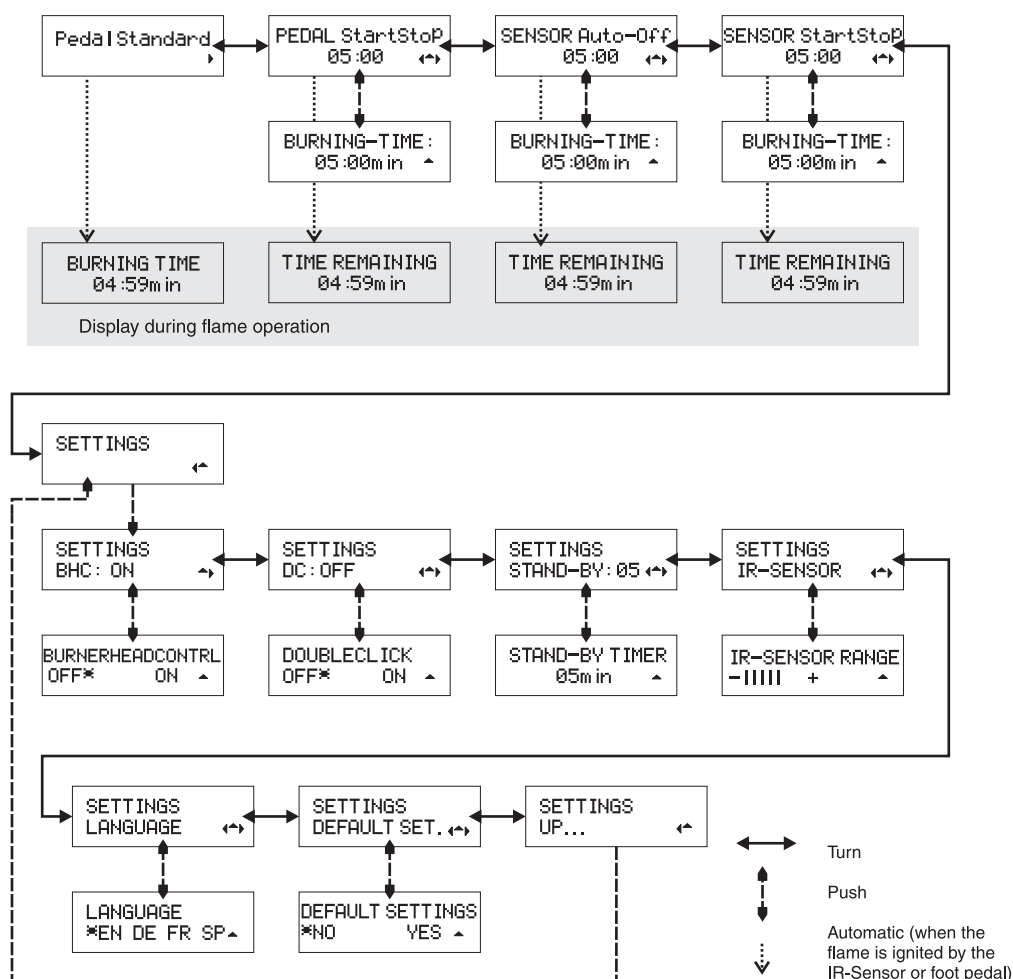
2.1 Operation: On-Off switch, menu navigation

Switch the unit on by a short push on the function knob (1). It can

* Use- and warning instructions of NiMH rechargeable batteries see page 14.

be turned off by a long push (2 seconds +) on the function knob. According to the arrows in the LCD (4) all menu items can be selected and deselected. The arrows in the display ◀▶ (left, push, right) show, in which direction the next menu items are accessible. If a menu item for time adjustment or settings is selected the time or parameter can be altered generally by turning the function knob. By pushing and turning the function knob all programs and settings can be selected and adjusted.

Structure of menu:



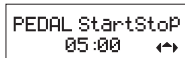
2.2 Operation: Application programs

- PEDAL Standard:



The flame is ignited by operation of the foot pedal. The foot pedal remains depressed for the duration of use. The flame is extinguished upon release of the pedal. (In case of a connected Autoloop (Pro) the unit switches over to a special Autoloop program. Please see Autoloop manual for further information)

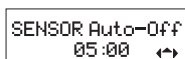
- PEDAL Start-Stop:



The flame is ignited by operation of the foot pedal. The flame is extinguished after renewed actuation of the foot pedal. Additionally the flame is automatically extinguished when the burning timer has expired. Alternatively the flame can be extinguished by a short push on the function knob. (In case of a connected Autoloop (Pro) the unit switches over to a special Autoloop program. Please see Autoloop manual for further information)

Varying the burning time (1sec. - 2 h): The burning time can be adjusted when the flame is off, only. To change the timer, press the function knob **(1)** at the particular application program. The time adjustment appears on the display. Now, by turning the function knob **(1)** the minutes can be varied. If the desired minute value is achieved press the function knob **(1)** again. Then, the needed seconds can be set by turning the function knob **(1)**. By pushing the knob again the time will be memorized and the menu returns to the application program.

- SENSOR Auto-Off:



For flame ignition, activate the sensor window **(6)** by passing your hand over it at a distance of 5-50 mm. The flame will burn for the timespan set on the burning timer and then extinguish automatically. Alternatively the flame can be extinguished by a short push on the function knob **(1)**.

Varying the burning time (1sec. - 2 h): see PEDAL Start-Stop

- SENSOR Start-Stop:

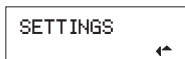


For flame ignition, activate the IR-Sensor **(6)** by passing your hand over it at a distance of 5-50 mm. The flame is extinguished after renewed activation of the IR-Sensor. Additionally the flame is automatically extinguished when the burning timer has expired. Alternatively the flame can be extinguished by a short push on the function knob **(1)**.

Varying the burning time (1sec. - 2 h): see PEDAL Start-Stop

Notice: All burning times are memorized and are available upon the next switch-on of the unit. Additionally the application program which was used the last time before turning off the unit is memorized and will be called upon the next switch-on.

2.3 Operation: Settings



To select the settings menu turn the function knob **(1)** to the right till "Settings" appear on the LCD. Access the settings menu by a short push on the function knob.

- BHC, Burner Head Control:



The safety feature BHC (see paragraph 3) identifies burner head clogging by liquids or solid substances. If the burner head is clogged "BHC" appears on the LCD (see also paragraph 3) and the maximum burning time is limited to 30 seconds. To disconnect this time limit press the function knob and set the asterisk "*" to OFF.

Memorize and return to the settings menu with a short push on the function knob.

BHC: ON: 30 s time limit activated (**factory settings**)

BHC: OFF: 30 s time limit deactivated

- DC, DoubleClick IR-Sensor:

DOUBLECLICK
OFF* ON ▲

When activated, this safety function ensures that the burner can only be ignited by activating the DoubleClick IR-Sensor twice. As a result, unintentional ignition or ignition due to dropping or falling objects is virtually impossible. To turn the DoubleClick ON press the function knob and set the asterisk "*" to ON. Memorize and return to the settings menu with a short push on the function knob.

DC ON: DoubleClick connected, within one second the IR-Sensor needs to be activated twice to ignite the flame

DC OFF: DoubleClick disconnected. The IR-Sensor needs to be activated one time only to ignite the flame (**factory settings**).

Working with the DoubleClick: Ignite the flame by passing the IR-Sensor (6) with your hand twice within a time range of one second. After the first activation „DC“ appears in the LCD for one second. During the period "DC" is shown on the LCD the IR-Sensor (6) needs to be activated a second time to ignite the flame.

- Stand-By:

STAND-BY TIMER
05m in ▲

This automatic unit cut-off system can be varied from 1 to 120 minutes. When the flame has been not ignited for a longer time as set on the Stand-By-timer the unit is switched off to avoid accidental activation, for example after a break.

To adjust the Stand-By timer press the function knob (1) and set the time by turning the knob clockwise or counterclockwise. If the needed time is set, memorize and return to the settings menu with a short push on the function knob (1).

- IR-Sensor:

IR-SENSOR RANGE
-IIIII + ▲

At the menu IR-Sensor, the detection range of the IR-Sensor can be varied. To adjust the IR-Sensor range press the function knob (1) and set the range by turning the knob clockwise or counterclockwise.

clockwise rotation: IR-Sensor range ++

counterclockwise rotation: IR-Sensor range --

The bar indicates the current (quantitative) IR-Sensor range. The adjusted range can be checked by passing the IR-Sensor (6) with your hand. If the IR-Sensor (6) is activated by your hand "IR" appears in the LCD.

If the needed range is set, memorize and return to the settings menu with a short push on the function knob (1).

Attention: It is possible to adjust the sensor range to 0 mm or more than 50 mm. Then the IR-Sensor is out of range and cannot be activated or "IR" is shown on the LCD permanently. In that case, increase or decrease the IR-Sensor range.

- Language:

LANGUAGE
*EN DE FR SP▲

To adjust the language press the function knob (1) and set the language by turning the knob clockwise or counterclockwise. If the asterisk "*" is placed in front of the required language, memorize and return to the settings menu with a short push on the function knob (1).

- Factory settings:

DEFAULT SETTINGS
*NO YES ▲

Enter the selection "NO"/ "YES" by pushing the function knob **(1)**. If "YES" is selected and if the function knob is pressed again, all timer and parameters will be reset to factory settings.

- Up:

SETTINGS
UP... ◀


To exit the settings menu press the function knob **(1)**. Then turn the function knob counterclockwise to return to the application programs.

2.4 Operation: switch-off

The unit can be turned off by pushing the function knob **(1)** for more than 2 seconds.

3. Safety symbols:

Residual heat display: The residual heat display  indicates a hot burner head.

Pedal Standard


Attention: If the residual heat display is on DO NOT TOUCH the burner head. Can cause burns!

Even after switching-off the unit the residual heat display remains on the LCD till the burner head is cooled down.

Notice: Disconnecting the power supply or removing the power cord will clear the residual heat display even if the burner head is still hot.

BHC: If the burner head is clogged "BHC" will blink on the LCD. Additionally, if BHC is ON in the settings menu, the maximum burning time will be limited to 30 seconds.

(see paragraph 2.3)

Pedal Standard
BHC

If BHC is blinking it is requested to clean the burner head immediately.(see paragraph 6.1)

4. Error displays:

- Ignition failure:

FLAME FAILURE
B.HEAD DIRTY?

This message appears and indicates a malfunction if the flame fails to ignite after 7 seconds. In case of ignition failure check the burner head **(7)** for possible clogging, check the correct input pressure of the gas supply and verify that the correct nozzle is installed. In case of this malfunction the gas supply will be shut off automatically.

Nozzle N: natural gas, 18-25 mbar

Nozzle P: propane-/ butane gas, 47-57 mbar

- Flame failure:

IGNITION FAILURE
CHECK GAS SUPPLY

This message indicates a malfunction if the flame is extinguished by external factors and fails to reignite within 5 sec. In case of flame failure check the burner head (7) for possible clogging and verify the correct input pressure of the gas supply.

In case of this malfunction the gas supply will be shut off automatically.

- Overtemperature

OVERTEMPERATURE
ALLOW

SUFFICIENT TIME
FOR COOL DOWN

This message indicates a malfunction if the interior temperature has exceeded 70 °C. At a normal room temperature with normal air circulation the unit is suited for continuous operation. In case of overtemperature increase the air ventilation or change the operation site.

In case of this malfunction the gas supply will be shut off automatically.

- BHC:

BHC TIME LIMIT
B.HEAD DIRTY?

This message indicates that the time limit (30 seconds) was turned on due to a clogged burner head. For cleaning the burner head **see paragraph 6.1.**

- Burner head assembly monitor:

REPLACE
BURNER HEAD

This message indicates that the burner head is removed. Further operation is possible after the burner head is reinstalled.

- Battery monitoring:

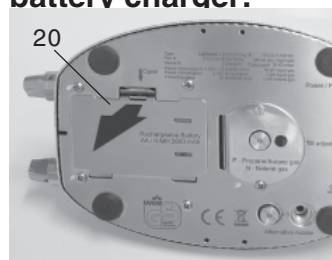
Battery Standard
🔋

The totally empty battery symbol starts flashing as soon as the capacity of the rechargeable batteries is almost exhausted. The device can be operated only for a few minutes, after which it shuts down automatically. Charge the rechargeable batteries for further operation independently of the mains power supply (**see paragraph 1.4**) or replace them (**see paragraph 5**).

Notice: All error displays can be reset by a long push (2 seconds+) on the function knob (1). (In case of overtemperature the unit needs to be cooled down and in case of burner head assembly monitor the burner head needs to be reinstalled prior a reset is possible.)

5. Battery replacement* / using an external battery charger:

Caution: To replace the rechargeable batteries, switch off the device with the help of the function knob (1) and shut the gas supply. Open the battery compartment cover (20) in the direction of the arrow. Take the old batteries out and insert the new recharged batteries. Please ensure correct polarity! The polarity is illustrated in the battery compartments and on the battery compartment cover (The two plus poles of the rechargeable batteries are in the direction of the dual- and function knob). Close the battery compartment cover (20) again after replacing the



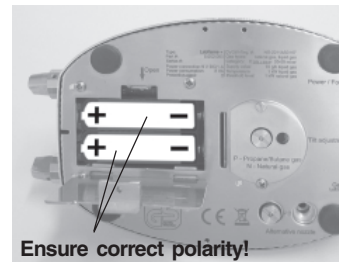
rechargeable batteries.

The used standard Mignon rechargeable batteries can also be charged externally with the help of a Biotool recommended charger (Product No.: LF8.000.950). Continuous operation is possible by using several externally charged battery sets. This way one can simply replace the empty batteries with the externally charged ones. In this case, the laboratory gas burner should not be connected to a power supply because the charging function is not required.

The external battery charger can be ordered under Product No.: LF8.000.950.

Additional rechargeable batteries can be ordered under Product No.: LF8.000.915.

For other recommended rechargeable battery types, please refer to Enclosure 1 / Page 13.



6. Cleaning and sterilizing:

Allow sufficient time for burner orifice (7, 7a) to cool down before disassembling or cleaning the burner head. Check the unit is disconnected and that the gas supply is turned off at the mains. The burner can be cleaned with customary commercial disinfectants. Additionally, it is possible to remove the burner head and to clean it separately.

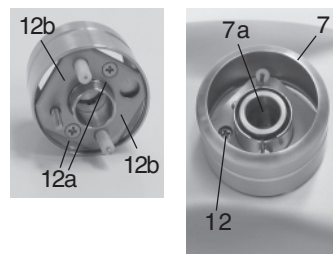
The stainless steel and glass construction allow 100% UV-radiation sterilization and short time surface flame sterilization.

Attention: Because of the connectors at the back of the unit the backside should not be sterilized with a flame.

6.1 Burner head disassembly and cleaning:

Allow sufficient time for burner orifice (7, 7a) to cool down before disassembling or cleaning the burner head. Check the unit is turned off, that the gas supply is turned off at the mains. Clean the burner head with customary commercial disinfectants, sterilize it in an autoclave or wash it in a dishwasher. To remove the burner head proceed as follows:

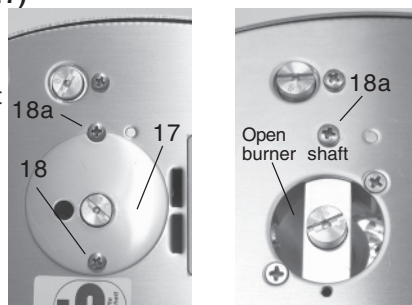
Unscrew the burner head screw (12) completely with the included screwdriver. Turn approx. 8 revolutions to the left. Now remove the burner head from the device by pulling it upwards. Reinstallation is performed in the reverse sequence.



The dismounted burner head can be even dismantled into the individual components for in-depth cleaning: Unscrew both screws (12a) and take off the base plate (12b) of the burner head which was fixed by the two screws (12a). After the base plate is removed both electrodes can be pulled out for separate cleaning. Reinstallation is performed in the reverse sequence.

6.2 Burner shaft cleaning:

Unscrew the screw (18) completely with the included screwdriver. Take off the cover (17) of the burner shaft. Now the burner shaft can be cleaned or solid substances which have fallen into the unit can be removed. Reinstallation is performed in the reverse sequence. Take care that the notch of the cover fits to the screw (18a).



7. Turbo flame:

If the cover of the burner shaft (17) is removed the flame is extremely firm and consistent.

To take off the cover of the burner shaft unscrew the screw (18) completely with the included

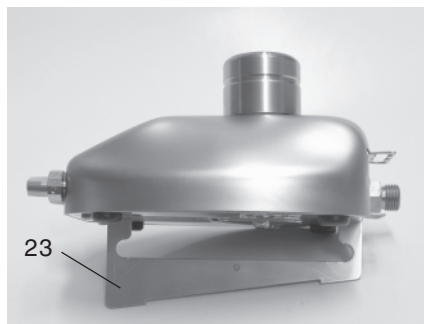
screwdriver. With an open burner shaft the intensity of the flame cannot be adjusted by the air knob any longer. During the use of the turbo flame most of the needed air is taken inside through the open burner shaft. Remounting the cover of burner shaft. (see paragraph 6.2)

8. Tilt adjustment:

Insert the tilt adjustment (23) into the slots (19) at the bottom of the unit. The tilt-adjustment can be used to the left or right side to protect the burning chamber from contamination when working with liquids.

9. Warranty:

All Labfame burners are covered under one-year manufacturer warranty against any manufacture defects in material and workmanship. The warranty guarantees all Labfame burners 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. In respect of parts to wear and tear (e.g. rechargeable batteries) this warranty shall be valid for six months from the date of purchase.



Enclosure 1: Recommended rechargeable batteries

Technology: Nickel Metal Hydride (NiMH)

Size: AA (Mignon)

Standards: ICE: HR6, ANSI:1.2H2, Other: NH15

Voltage: 1.2 V

Capacity: 2300 – 2800 mAh

We recommend the following rechargeable battery types, because only these rechargeable batteries guarantee the specified number of operating hours, full functionality and long life:

- Panasonic 2600 mAh (Model: HHR-260AAB)
- Sanyo Superlative Alloy EVO 2700mAh (Model: HR-3U 1,2V)
- Energizer Rechargeable 2450mAh


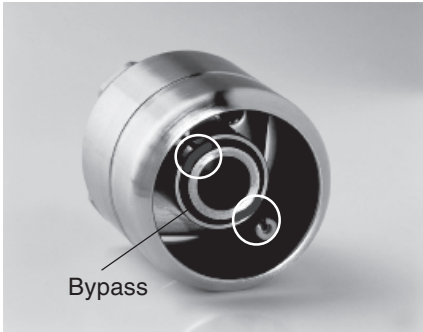
The device is delivered with two approved rechargeable batteries.

Spare rechargeable batteries can also be ordered directly from Biotoool (Product No.: LF8.000.915).

Enclosure 2: Use- and warning instructions of NiMH rechargeable batteries and the integrated charging function

- Insert only the **recommended, rechargeable batteries** (Page 13), i.e., no other battery type and **no non-rechargeable batteries**, because health hazards and physical injuries cannot be ruled out otherwise.
- Rechargeable batteries should not be disposed with household garbage. Please comply with the local waste disposal provisions, which can be obtained from your community, your dealer or the person from whom you purchased the product.
- The charging time of 3 hours can increase, if the device is heated after a long burning period. The charging electronic system is equipped with a temperature sensor which prevents charging at high temperatures.
- Do not short-circuit the battery contacts.
- Do not throw the battery into the fire (danger of explosion).
- Please observe the charging specifications of the relevant battery manufacturer! Use the integrated charging function only for batteries of large capacity from 2000 mAh onwards. The charging current of the integrated charging electronic system of the device is 1000 mA.
- Use 2 rechargeable batteries of the same type only! Otherwise the battery may explode, leak or become hot, causing injury.
- If the device has come into contact with liquid: Turn the main gas supply off. Turn off the gas burner at the function knob (1) and remove the rechargeable batteries immediately. Before further use place the device in a dry warm place for at least 72 hours (**not in a microwave, oven, etc!**)
- Keep rechargeable battery contact surfaces and rechargeable battery compartment contacts clean by rubbing them with a humid cotton swab. Clean carefully and do not damage the contacts.
- Remove batteries from a device when it is not expected to be in use for more than one year.
- During the charging process the rechargeable batteries will heat up.

Notes

Troubleshooting guide	
The blue power lamp does not light up Check for correct connection and specification of the power adapter. Ensure that the original power adapter is used. Specifications: 9 V / DC, 1A Polarity: + —  —	
The foot pedal does not work Check for correct connection of the foot pedal. Ensure that the foot pedal socket and plug is not twisted or broken.	
No Flame In case of ignition or flame failure check if the burner head is clogged. Verify the input pressure of the used gas. Ensure that the correct nozzle is installed in the unit. (see paragraph 4) Nozzle N : natural gas, input pressure: 18-25 mbar Nozzle P : propane / butane gas, input pressure: 47-57 mbar	
Inspection of the burner head (clogging) Take care that there are no liquids or other substances at the Bypass (area between the inner and the outer ring) Especially remove substances in the marked areas at the electrodes. If there are contaminants in this area, the flame cannot encircle the electrodes correctly. Clean this areas with a brush. The burner head can be cleaned with customary commercial disinfectants, or it can be sterilized in an autoclave or washed in a dishwasher.	
	
Flame burns 30 seconds, only BHC time limit is active, BHC appears at the LCD. The burner head is clogged and must be cleaned (see paragraph 6.1) . The time limit can be disconnected in the settings menu at point BHC (see paragraph 2.3) .	
Flame too small / large / soft Check the position of the air and gas adjustment. Check if the correct nozzle is installed. Nozzle N : natural gas, 18-25 mbar Nozzle P : propane / butane gas, 47-57 mbar Check if the drilling of the active nozzle is blocked. Unscrew the active nozzle. (see paragraph 1) If the drilling is blocked clean with a brush or compressed air.	
No ignition spark / BHC blinks but the burner head is clean. Check if the ceramic electrodes are in good condition. In some cases the electrodes may break. To check move the ends of the electrodes. If they are not moving they should be okay. If they are moving more than 0.5 mm the electrodes are broken. The electrodes can be dismantled and changed by the user. (see paragraph 6.1)	

The IR-Sensor does not work

It is possible to adjust the sensor range to 0 mm or more than 50 mm. Then the IR-Sensor is out of range and cannot be activated or "IR" is shown on the LCD permanently. In that case, increase or decrease the IR-Sensor range at the point IR-Sensor in the setting menu.(see paragraph 2.3)

The burner shuts-off due to overtemperature frequently

In case of overtemperature increase the air ventilation or change the operation site.

Technical data:

Technology Microprocessor, LC-Display

Programs

IR Sensor: Start-Stop with timer, 1 sec - 2 h
Auto-Off with timer, 1 sec - 2 h
Foot pedal: Standard (flame during pressed foot pedal)
Start-Stop with timer, 1 sec - 2 h

Safety features

Safety Control System (SCS): ignition and flame control, temperature monitor
with gas safety cut off burner head clogging and
assembly monitor (BHC)
automatic unit switch off, 1 - 120 min
residual heat display

**Gas supply and consumption**

Gas supply: 1/4" left + filter
Gas types: lI2ELL3B/P: natural gas E/LL, 18 - 25 mbar
liquid gas, 20 - 50 mbar
Connected load: 70 g/h liquid gas
Continuous cartridge operation CV 360 - 40 min, Express 444 - 50 min,
CG 1750 - 150 min, C 206 - 170 min,
CP 250 - 210 min, CV 470 - 3470min

Temperatures

Flame temperature: 1350 °C on liquid gas
1300 °C on natural gas (E)
Temperature threshold level: 1 kW liquid gas, 1 kW natural gas

Electrical

Power consumption: 2 VA
Power connection: 100 - 240 V / 50/60 Hz / max. 0.3 A
9 V DC / 1 A
Rechargeable battery: NiMH 2.4V (2 x Mignon (AA) rechargeable
Battery, 1.2V 2600mAh)
Hours of operation: up to 9 hours of continuous start / stop operation
(up to 2000 inoculation loop annealing operations)
Charging time: up to 3 hours
Charging current: 1000 mA
IR-Sensor coverage: 5 - 50 mm, adjustable
DoubleClick IR-Sensor: time range 1sec (can be disconnected)

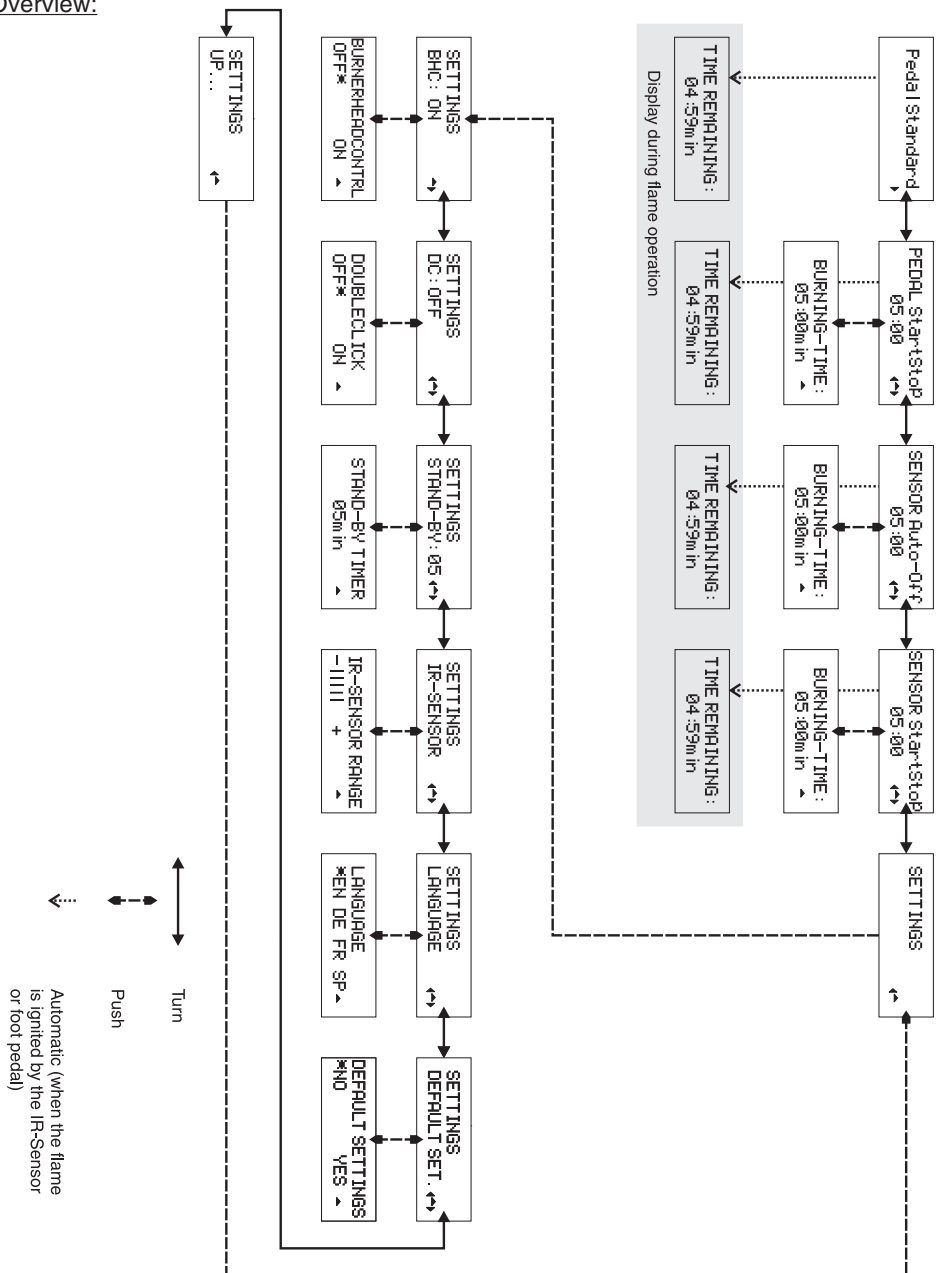
Mechanical

Casing and operating controls: stainless steel / glass, UV and solvent resistant
Burner head: removable and decomposable, stainless steel
Cover of the burner shaft: Ø 23 mm, with drains
Measurements (B x H x T): 103 x 49 x 130 mm
Weight: 700 g (without rechargeable batteries)

Licences

DIN-DVGW Reg.-No.: NG-2211AS0167
CE: EN 61326-1, EN61000-3-2, EN 61010
EEC guidelines: 89/336/EEC und 73/23/EEC

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