1 - Function knob
2 - Gas adjustment
3 - Air adjustment
4 - Status-LED
5 - Burner tube
6 - Flame orifice
7 - Active nozzle (inside the burner tube)

8 - Connector for foot pedal
9 - Power connector
10 - Gas inlet R 1/4" L gas adapter (left hand thread)
11 - Holding device for inoculation loop holder
12 - Electrode holder
13 - Screw for Electrode holder
14 - Monitor electrode
15 - Ignition electrode
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Read these instructions carefully to familiarize yourself with the product. Please retain these operating instruction for future reference.

Use

Safety Bunsen Burner for Microbiology, Cell Biology, Dental Labs, etc. Ideal for heating and flame sterilizing.

All users who have been assigned to use this device must have read and understood these operating instructions or have been instructed by an expert user so that this device can be used safely without causing danger.

ATTENTION: OPERATE THIS SAFETY BUNSEN BURNER UNDER CONSTANT SUPERVISION ONLY!

Safety Precautions

- On unpacking the unit, check for possible transportation damages. Do not operate the unit if damages are visible.
- After use or for any longer period of time without attendance, turn the main gas supply off. To depressurize gas hose keep the main gas supply off and activate the burner again until the flame extinguishes in order to burn the residual gas. Afterwards turn off the gas burner at the function knob (1).
- All gas connections must be adequately tightened (left-hand thread). Ensure gas proofness with suitable test equipment. DO NOT seal up the thread of the gas connection (10) of the safety bunsen burner with Teflon tape, etc.
- BEFORE using the device carefully check the gas feed tube for leaks. Check this even if the device has been installed by your distributor. To do this, carry out all the procedures mentioned in these operating instructions (see paragraph 1.).
- In the event that gas can be smelled: immediately turn off the gas supply to the device. Extinguish any open flames. Pull out the mains plug. Check all gas connections for gas proofness. If the smell of gas persists, the appropriate authorities must be notified (janitor, gas utility company, Fire Brigade).

LEAKING GAS CAN CAUSE A FIRE OR AN EXPLOSION. THIS MAY RESULT IN SEVERE INJURIES, FATAL ACCIDENTS AND DAMAGE TO PROPERTY.

- The device can be dangerous if operated or used in an incorrect manner by untrained staff.
• An incorrect gas connection may create a hazard. Observe the installation instructions in the manual.

• Do not store spare or unconnected gas cartridges / gas bottles in the vicinity of this device.

• Even in an apparently empty gas cartridge / gas bottle, some gas may still remain. Gas cartridges / gas bottles should be transported and stored accordingly. Empty gas cartridges should be properly disposed.

• Do not use the device if there is a smell of gas or if there is a leak.

• NEVER try to loosen or unfasten gas connections while the gas supply is turned on and the device is in operation.

• 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.

• NEVER use an open flame to look for leaks.

• Do not smoke if you are searching for leaks.

• Keep hands or other parts of the body away from the burner orifice (6).

• 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 flame orifice (6) and burner tube (5) remains hot after the flame has been extinguished. Do not touch. Can cause burns.

• Allow sufficient time for flame orifice (6) to cool down prior to cleaning, desinfecting, 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 tube (5) to cool down prior to disassembling.

• Operate the unit with assembled burner head (5) only.

• After cleaning the burner tube (5) allow sufficient time to dry before assembling again.

• Do not allow anything to fall into the flame orifice (6).

• When working with this device, always wear protective glasses.
The range

Flame 100

Art.-No. 2.100.000

- With button function
- SCS (Safety Control System)
- BHC (Burner Head Control)
- Removable burner tube
- Holding device for 2 inoculation loop holders (11)
- Nozzles for natural gas (N/55), propane/butane gas (P/34)
- Wrench SW17 mm (R1) for gas connection and changing nozzle
- Screwdriver (R3) for electrode holder
- Tubing connector with swivel nut for 10 mm pipe spout tubing (R2)
- Power connection with 4 adapter (R4), global (level 6)
- Instruction manual
- 2-year warranty
1. Set up

Initial operation is to be carefully carried out as described in the following paragraphs.

⚠️ Failure to observe the instruction manual may give rise to hazards from leaks and/or bursts of flame.

1.1 Choice of nozzle

Nozzles, gas type and pressure:
- **N/Ø 0.55 mm**: Natural gas for a pressure of 18-25 mbar
- **P/Ø 0.34 mm**: Propane/butane gas for a pressure of 47.5 - 57.5 mbar

💡 The device is supplied from factory with a nozzle (7) for natural gas (N/55) pre-installed.

It may be necessary to adapt the nozzle in use (7) in the appliance to the type of gas; to do so, proceed as follows:

Loosen the screw for the electrode holder (13) with the flat head screwdriver supplied (R3). Slightly tilt the electrode holder (12) backwards and away from you. Turn down the air adjustment (3) as far as necessary so that the flat head screwdriver (R3) can be inserted through the airholes in the burner tube (5). Using the screwdriver (R3), loosen the burner tube (5) by turning counter-clockwise and unscrew it completely. Loosen the nozzle N/55 (7) for natural gas with the wrench (R1) supplied by turning counter-clockwise, unscrew completely and remove. Thereafter, screw in nozzle P/34 supplied for use with propane/butane gas and tighten it with the wrench (R1). Next, screw on the burner tube (5) again, insert the screwdriver (R3) through the burner tube’s (5) airholes and tighten in clockwise direction.

⚠️ Before tightening the burner tube (5), screw the air adjustment (3) upwards over the burner tube’s (5) airholes sufficiently that the air adjustment (3) does not get jammed and can be easily moved after being retightened.

Finally, place the electrode holder (12) in a vertical position again, push the electrode holder’s (12) cables carefully into the housing and tighten with the screw for the electrode holder (13). Take care not to jam the cables of the electrode holder.
1.2 Gas connection

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 30-50 mbar. Only use DVGW or other gas approved safety tubings with thread or tubing connectors (R2).

Check the condition of the tube/hose frequently. Depending upon type of tube hose, the included tubing connector with swivel nut (R2) and/or hose clamps are required.

All gas connections must be adequately tightened (left hand thread) with the wrench (R1) (SW 17mm, included).

Ensure gas proofness with a suitable test fluid / equipment.

**DO NOT** seal up the thread of the gas connection of the safety bunsen burner (10) with Teflon tape, etc.

A DVGW-proven or other gas approved pressure regulator (50 mbar) must be used for liquid gas. Pay attention to your relevant rules for using liquid gas. Several gas cartridge adapter are optionally available.

1.3 Electrical connection

Insert the power cord of the power supply (R4) into the socket (9) on the back panel of the unit, or into the socket of the foot pedal (optional). The default supply must be connected to a voltage source of 100 - 240 V / 50/60 Hz.

1.4 Foot pedal connection / external IR-motion sensor

Insert the connection cable of the foot pedal or the external IR - motion sensor (accessory) into the socket (8) at the back of the unit.

The foot pedal / external IR - motion sensor are optional:

- Stainless steel foot pedal: Art.-No.: 6.000.402
- Foot pedal mini / plastic: Art.-No.: 6.000.403
- Wireless foot pedal (EU countries only): Art.-No.: 8.000.404-RF
- External IR-motion sensor: Art.-No.: 6.000.406

2. Operation

This section describes the operation of the unit with the function knob (1), gas adjustment (2) and air adjustment (3).
2.1 On-Off switch
Switch the unit on by a short push on the function knob (1). The Status-LED (4) lights up green when the unit is on and ready for use. It can be turned off by a long push (> 2 seconds) on the function knob (1).

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

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

2.3 Switch-off / End of work
The unit can be turned off by pushing the function knob (1) for more than 2 seconds.

After use or for any longer period of time without attendance, turn the main gas supply off. To depressurize gas hose keep the main gas supply off and activate the burner again until the flame extinguishes in order to burn the residual gas. Afterwards turn off the gas burner at the function knob (1).

3. Application programs
This section describes both application programs („Button Start-Stop“ and „Pedal Standard“)

3.1 Button Start-Stop
The flame is ignited by operation of the function knob (1). The flame is extinguished after renewed actuation of the function knob (1). In addition the flame is automatically extinguished when the burning timer has expired after 60 min.

3.2 Pedal Standard
The flame is ignited by operation of the foot pedal or external IR-motion sensor (optional, see paragraph 1.4). For the duration of use the foot pedal remains depressed or keep your hand within the range of the IR-motion sensor. The flame goes out once the foot pedal is released or as soon as nothing is within the range of the IR-motion sensor.
4. Safety symbols / Safety Control System (SCS)
The safety symbols appear during usage to warn the user of potential hazards.

4.1 Burner Head Control (BHC)
If the burner head (upper part of the burner tube (5)) is clogged, the Status-LED (4) will flash orange. Additionally, if the Status-LED (4) is flashing, the maximum burning time of the Programs “Button” and “Pedal Standard” is limited to 30 seconds. If the Status-LED (4) is flashing you have to clean the burner tube immediately (see paragraph 6.1).

4.2 Automatic unit switch off
The unit switches itself off automatically after 4 hours if the flame has not been lit in this period. All indicated malfunctions are automatically switched off after 4 hours, too (see paragraph 5). For further operation, switch the unit on again.

4.3 Ignition and flame control
If the flame fails to ignite after 7 seconds, the gas supply of the burner will be shut off and the unit indicates a malfunction (see paragraph 5.1 and 5.2).

4.4 Temperature monitoring
If the interior temperature has exceeded 70 °C, the gas supply of the burner will be shut off and the unit indicates a malfunction (see paragraph 5.3).

5. Error displays
If there is an error during operation, in some cases the gas valve of the burner automatically closes and the different blinking LED (4) indicates the error.

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 prior a reset is possible).

5.1 Ignition failure
Status-LED (4) blinks 2x red
This signal appears and indicates a malfunction if the flame fails to ignite after 7 seconds. In case of ignition failure check the burner tube (5) 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 of the burner will be shut off automatically.

Nozzle N/55: natural gas, 18-25 mbar  
Nozzle P/34: propane/butane gas, 30-50 mbar

5.2 Flame failure

**Status-LED (4) blinks 3x red**

This signal indicates a malfunction if the flame is extinguished by external factors and fails to reignite within 7 seconds. In case of flame failure check the burner tube (5) for possible clogging and verify the correct input pressure of the gas supply. In case of this malfunction the gas supply of the burner will be shut off automatically.

5.3 Overtemperature

**Status-LED (4) blinks 4x red**

This signal 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 of the burner will be shut off automatically.

6. Cleaning and sterilizing

Allow sufficient time for burner orifice (6) and burner tube (5) to cool down before disassembling or cleaning the burner head. Check if the unit is disconnected and that the gas supply is turned off at the mains. The burner can be cleaned with customary commercial disinfectants.

> After cleaning allow sufficient time to dry the burner tube (5) before assembling again!

6.1 Burner tube disassembly and cleaning

For in-depth cleaning the burner tube can be removed. Check the unit is disconnected, that the gas supply is turned off at the mains and that the burner tube (5) and orifice (6) is cooled down (see paragraph 2.3). Clean the removed burner tube with customary commercial disinfectants, sterilize it in an autoclave or wash it in a dishwasher.

To remove the burner tube proceed as follows:

Loosen the screw for the electrode holder (13) with the flat head screwdriver supplied (R3). Slightly tilt the electrode holder (12) backwards and away from you. Turn down the air adjustment (3) as far as
necessary, so that the flat head screwdriver (R3) can be inserted through the airholes in the burner tube (5). Using the screwdriver (R3), loosen the burner tube (5) by turning counter-clockwise and unscrew it completely. Clean the removed burner tube and allow sufficient time to dry before assembling again. Next, screw on the burner tube (5) again, insert the screwdriver (R3) through the burner tube’s (5) airholes and tighten in clockwise direction.

**Before tightening the burner tube (5), screw the air adjustment (3) upwards over the burner tube’s (5) airholes sufficiently that the air adjustment (3) does not get jammed and can be easily moved after being retightened.**

Finally, place the electrode holder (12) in a vertical position again, push the electrode holder’s (12) cables carefully into the housing and tighten with the screw for the electrode holder (13). Take care not to jam the cables of the electrode holder.

### 7. Warranty

All WLD-TEC Bunsen burners are covered under our two-year manufacturer warranty against any manufacture defects in material and workmanship. The WLD-TEC warranty guarantees all Bunsen 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.
Technical Data

Technology: Microprozessor

Programs
Button: Start-Stop with timer, 60 min
Foot pedal: Standard (flame during pressed foot pedal or activated external IR-motion sensor, foot pedal and external IR-motion sensor optional)

Safety features
Safety Control System (SCS) with gas safety cut off: ignition and flame control, temperature monitor burner head clogging monitor (BHC)
Automatic unit switch off: 4 h

Gas supply and consumption
Gas connection: 1/4” left with gas filter
Gas types: Natural gas E/LL: 18 - 25 mbar, liquid gas 47.5 - 57.5 mbar, lIl2ELL3BP
Connected load: 49 l/h Erdgas (LL), 53 l/h Erdgas (E), 43 g/h Flüssiggas
Continuous cartridge operation: (approx.)
- *Campingaz*: CV 360 - 65 min, C 206 - 230 min,
- CP 250 - 305 min, CV 470 - 550 min, CG 1750 - 210 min,
- *Guilbert*: Express 444 / 445 - 70 min
- *Coleman*: C 250 - 220 min, C 500 - 450 min

Temperatures
Flame temperature: 1200°C on liquid gas / 1170 °C on natural gas (E)
Temperature threshold level: 0.55 kW liquid gas, 0.50 kW natural gas (E), 0.40 kW natural gas (LL)

Electrical
Power consumption: 2 VA (stand by max. 0.1 VA)
Power connection: 100 - 240V / 50/60Hz / max. 0.3A; 9V DC / 1.3A Level 6 (stand by power consumption max. 0.1W)

Mechanical
Burner tube: removable, stainless steel
Measurements (w x h x d): 89 x 34 x 88 mm
Height with burner tube: 94 mm
Weight: 385 g

Licenses
DIN-DVGW Reg.-No.: NG-2211AS0167
CE: EN 61326-1, EN 61010-1, EN 61010-2-010
Troubleshooting guide

• Status-LED 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, 1.3 A
  Polarity: 

• No Flame
  In case of ignition or flame failure check if the burner tube is clogged. Verify the input pressure of the used gas. Ensure that the correct nozzle is installed in the unit.
  N/55: natural gas, 18 - 25 mbar
  P/34: propane / butane gas 47.5 - 57.5 mbar

• The foot pedal or external IR-motion sensor does not work
  Check for correct connection of the cable. Ensure that the socket and plug is not twisted or broken.

• Status-LED flashes orange (BHC)
  Take care that there are no liquids or other substances at the Bypass (area between the inner and the outer ring at the upper part of the burner tube (5)). 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 tube can be cleaned with customary commercial disinfectants, or it can be sterilized in an autoclave or washed in a dishwasher (see paragraph 6.1).

• In operating mode "Button" and "Pedal Standard" the flame only burns 30 seconds
  BHC time limit is active, Status-LED “ is flashing amber. The burner tube is clogged and must be cleaned (see paragraph 4.1 and 6.1).

• Flame too small / large / soft
  Check the position of the air and gas adjustment.
  Check if the correct nozzle is installed.
  N/55: natural gas, 18 - 25 mbar
  P/34: propane / butane gas, 47.5 - 57.5 mbar
  Check if the drilling of the active nozzle is blocked. Unscrew the active nozzle (see paragraph 1.1). If the drilling is blocked clean with a brush or compressed air.

• The burner shuts-off due to overtemperature frequently
  In case of overtemperature increase the air ventilation or change the operation site (see paragraph 5.3).
• Status-LED blinks 2x red
  Ignition failure (see paragraph 5.1).

• Status-LED blinks 3x red
  Flame failure (see paragraph 5.2).

• Status-LED blinks 4x red
  Overtemperature (see paragraph 5.3).

• Status-LED flashes orange
  BHC activ (see paragraph 4.1).

Service address:

WLD-TEC GmbH
Production & Service
Halle-Kasseler-Str.49
37318 Arenshausen
Phone: +49 (0)36081 68940
Fax: +49 (0)36081 68942
Email: sales@wld-tec.com
Internet: www.wld-tec.com
EU-KONFORMITÄTSERKLÄRUNG

Declaration of Conformity

Gültig ab / Valid from: 20. April 2016

zu den Richtlinien / following to the Directives: 2014/30/EU, 2014/35/EU & 2011/65/EU
für Sicherheitsbunsenbrenner / for Safety Bunsen Burner

Fuego SCS: #8.200.000  Flame 100: #2.100.000
Fuego SCS basic: #8.201.000  Fuego SCS pro: #8.204.000

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

   Safety requirements for electrical equipment for measurement, control, and laboratory use. Part 1: General requirements

   Safety requirements for electrical equipment for measurement, control, and laboratory use. Part 2-010: Particular requirements for laboratory equipment for the heating of materials

WLD-TEC GmbH
Halle-Kasseler-Str.49
D-37318 Arenshausen
Germany

B. Wartewig
(Geschäftsführer, CEO)
Wir, der Hersteller, erklären hiermit, dass das Produkt: / We, the manufacturer, hereby confirm, that the product:

Gerätetyp / Type: FW8000M/09
Artikel-Nr. / Part-No.: 1899085
Zeichnungs-Nr. / Drawing-No.: 15.4474.500-01

weitere Merkmale / additional information:


Hereby, we certify that our products, regardless of the production location, RoHS compliant and fulfill the directive 2011/65/EC (revised version: directive 2002/95/EC).

Das Gerät entspricht der / The unit corresponds to:

a) Niederspannungsrichtlinie / Low Voltage Directive
b) EMV-Richtlinie / EMC Directive
c) Öko Design / ECO Design
  □ EN60601-1 Ed.3 07/2007 □ EN 60601-1-2 12/2007 □ Not applicable

Ausstelldatum / Date of issue: 22.03.2016

Firmenstempel / Company stamp

Armin Wegener
Vice President Research & Development
Notizen / Notes / Notation:
Vertrieb:
Spandauer Weg 1
D-37085 Göttingen
Telefon: +49 (0)551 / 793789
Telefax: +49 (0)551 / 793707
Email: sales@wld-tec.com
Internet: http://www.wld-tec.com

Production & Service:
Halle-Kasseler-Straße 49
D-37318 Arenshausen
Telefon: +49 (0)36081 / 68940
Telefax: +49 (0)36081 / 68942

Sales Department:
Spandauer Weg 1
D-37085 Göttingen
Phone: +49 (0)551 / 793789
Fax: +49 (0)551 / 793707
Email: sales@wld-tec.com
Internet: http://www.wld-tec.com

Production & Service:
Halle-Kasseler-Straße 49
D-37318 Arenshausen
Phone: +49 (0)36081 / 68940
Fax: +49 (0)36081 / 68942

Ventes:
Spandauer Weg 1
D-37085 Göttingen
Téléphone: +49 (0)551 / 793789
Téléfax: +49 (0)551 / 793707
Email: sales@wld-tec.com
Internet: http://www.wld-tec.com

Production & Service:
Halle-Kasseler-Straße 49
D-37318 Arenshausen
Téléphone: +49 (0)36081 / 68940
Téléfax: +49 (0)36081 / 68942

Email: sales@wld-tec.com • Internet: http://www.wld-tec.com

(02/2016) Technische Änderungen vorbehalten. | Subject to technical changes. | Sous réserve de modifications techniques.