OPERATING MANUAL

LG Findings Welder

Fine welding device

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MADE IN GERMANY

Product :	Fine welding device
Type:	LG Findings welder
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Contents

1 About this operating manual

Before operating the device for the first time or starting any other work on the device, you are required to read these operating instructions carefully.

Pay particular attention to the chapter 2 "General safety regulations".

1.1 General

These operating instructions are intended to help you get to know the device and use it as intended. They contain important information on how to operate the device safely and properly.

The operating instructions must

- be fully read and applied by any person assigned to work on the device.
- be stored in such a way that they are accessible at all times to all users at the place of use of the device.
- be handed over to third parties together with all necessary documents when the device is passed on.

Observance of the operating instructions helps

- to avoid dangers.
- to reduce repair costs and downtime.
- to increase the reliability and service life of the device.

In addition to the operating instructions, the accident prevention and environmental protection regulations applicable in the country of use and at the place of use must also be observed.

Safety and danger notices on the device must be kept in legible condition and must not be removed, covered or damaged.

1.2 Presentation of information

Handling instructions

The instructions explain step by step which activities have to be carried out and how to proceed.

In these operating instructions, handling instructions are marked with the following symbols:

- ➢ The steps marked with this activity symbol may be carried out in any order.
- 1) Numbered steps **must be** carried out exactly in the given order.
- ✓ The result symbol describes the result or intermediate result of an action.

Application tip

The "**TIP**" indicates additional information for easy and safe use of the device.

TIP: Note on the optimal use of the device.

1.3 Structure of the warnings

Signal word	Avoidance of ...	Possible consequences if the warning is not heeded:
DANGER	Personal injury (imminent danger)	Death or severe injuries!
WARNING	Personal injury (potentially hazardous situation)	Death or severe injuries!
CAUTION	Personal injury	Light or minor injuries!
NOTE	Property damage	Damage to the device or its immediate surroundings!

Tab. 1.1 Warning levels

The warnings are structured as follows:

- Warning sign with signal word in accordance with the warning level (see Tab 1.1)
- Type of hazard (description of the hazard)
- Consequences of the hazard (description of the consequences of the hazard)
- Hazard prevention (measures to prevent the hazard)

DANGER!

Type of hazard

Consequences of hazard

➢ Hazard prevention

Warning sign Special warnings are given at relevant points. They are marked with the following pictograms.

General warning sign
This sign warns of personal injury.

In the case of a clearly identifiable source of danger, it is preceded by one of the following pictograms.

Electrical voltage
Warning of possible electric shock, potentially with fatal consequences.

Hand injuries
Warning about the danger of hand injuries.

Hot surfaces
Warning of hot surfaces.

Pressurised containers
Warning of fire and explosion hazard.

Optical radiation
Warning of optical radiation.

Hazard due to electromagnetic radiation
Warning of electromagnetic fields.

2 General safety regulations

2.1 Principles

The device shall be used only when in flawless condition and is intended exclusively for work in accordance with the intended use.

2.2 Intended use

The device is intended for welding on all metals and alloys that are suitable for arc welding.

Intended use also includes

- the complete reading and following of all instructions in the operating manual.
- the complete reading and following of all safety and hazard instructions.
- compliance with maintenance and servicing work.

The device is designed for use in industrial and commercial applications. The manufacturer is not liable for damage resulting from use outside this area of application.

Temperature range of the ambient air:

- during operation: -10 °C to + 40 °C (14 °F to 104 °F)
- during transport and storage: -20 °C to +55 °C (-4 °F to 131 °F)

Relative humidity:

- - up to 50 % at 40 °C (104 °F)
- - up to 90 % at 20 °C (68 °F)

The ambient air should be free of dust, acids, corrosive gases or substances.

2.3 Foreseeable misuse

The hardware and software of the device is designed in such a way that misuse is largely avoided or reduced to a minimum by safety features. Nevertheless, in exceptional cases, misuse by the user is possible and must be avoided when operating the device:

- Welding of non-weldable metals or alloys
- Use of an inappropriate shielding gas
- Exerting too much pressure on the electrode
- Use of the device without personal protective equipment

2.4 Safety instructions

General information

- If the device shows signs of damage, it must be taken out of service.
- If malfunctions occur, the device must be taken out of service.

Personal protective equipment

The personal protective equipment listed below must be worn during every welding operation:

- Gloves
- Eye protection
- Dry clothing (non-synthetic and flame retardant)

Furthermore, the workplace must be sufficiently ventilated. If this cannot be ensured by fresh air supply, an exhaust system must be installed.

Handling protective gas cylinders

Observe the relevant precautions when handling gas cylinders, as well as the safety rules for handling gases.

In particular, gas cylinders must be secured against falling over and down and protected against heating (max. 50 °C), especially during prolonged exposure to sunlight and against severe frost.

During transport

- Ensure that all connecting cables have been removed from the device to prevent the operator from tripping and damaging the device.
- When transporting the device, ensure that it is always securely packed and not dropped or knocked over.

During installation

- The device must be placed in a stable and non-slip position at the workplace.
- The device must be placed on a non-combustible surface.

During commissioning

- The device must not be connected to a circuit in which devices (e.g. TIG welders) that work with high frequency are operated at the same time. This may cause irreparable damage to the device. In the case of simultaneous operation with equipment that operates at high frequency, always ensure that the device is operated on a separate, individually fused circuit that is shielded and protected from high frequency input from other equipment. In addition, physical separation and a minimum distance of at least 5 meters from devices that work with high frequency must always be maintained.
- The eye protection must be checked for correct fit and proper function. Follow the instructions in the operating manual of the respective eye protection system.
- Before each start-up of the device, make sure that the gas connection on the back of the device as well as the connection on the flow regulator have been hand-tightened without tools.

- If there are indications of leaks in the gas hose or gas connection (e.g. audible hissing or whistling noise or unusually rapid loss of pressure in the gas container), the device must be taken out of operation and defective components replaced.

During operation

- Always wear gloves when welding. Do not touch the workpiece without gloves during or immediately after the welding process.
- During the welding process, parts of the skin must never be directly exposed to the UV radiation that is generated by the welding process.
- An extraction system must be installed at the workplace. In addition, the workplace should be sufficiently ventilated without creating draughts.
- The flow rate at the flow regulator must be between 2 - 3 litres/minute.

Maintenance and inspection work

- Disconnect the device from the power supply before carrying out maintenance, inspection and cleaning work.
- The clamping nut on the handpiece must be hand-tightened after replacing the electrodes.
- When regrinding electrodes, wear protective gloves and do not touch the rotating grinding wheel.
- When regrinding electrodes, make sure that the resulting grinding dust is not inhaled.
- The device fuse may only be replaced by a qualified electrician and only the fuse approved by the manufacturer for the respective mains voltage may be used.

During disassembly

- The valve on the gas cylinder must always be closed during decommissioning and dismantling.
- When dismantling the device, disconnect it from the power supply.
- When dismantling, remove the electrode from the handpiece to avoid puncture injuries.

2.5 Residual risks for device operation

In principle, it is not possible to exclude the following hazards:

- Puncture injury from electrode due to improper handling of the handpiece
- Danger from leaking or improperly connected protective gas cylinders
- Eye and skin damaging arc radiation on uncovered skin areas

2.6 Selection and qualification of personnel

The operator undertakes to only allow persons to work on the device who

- are familiar with the basic regulations on occupational safety and accident prevention and have been instructed in the handling of the device.
- have read and understood this operating manual, in particular the chapter "General safety regulations".
- are trained with regard to the requirements for the work results.

The safety-conscious working of the personnel must be checked at regular intervals.

All persons who are instructed to work on the device undertake, before starting work, to

- observe the fundamental regulations governing occupational safety and accident prevention.

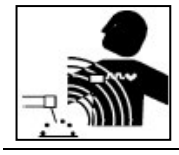
- confirm with their signature that they have read and understood this operating manual, and in particular the chapter on “safety instructions”, and that they will observe this information.

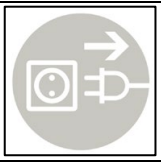
2.7 Safety devices

- The device has a thermal cut-off device that is activated if the heat build-up is too high, preventing the device from overheating.

2.8 Safety signs

Fig. 2.1 Safety signs on the back of the device

Safety sign	Description
	Electromagnetic fields may impair the function of pacemakers.
	Inhaling welding fumes can endanger your health.
	Arcs can damage the eyes and injure the skin.

Safety sign	Description
	Welding sparks may cause an explosion or fire.
	In case a qualified electrician needs to open the device, the main cable always needs to be unplugged before.
	The union nut of the protective gas hose may only be tightened by hand on the protective gas connection. The use of tools (e.g. wrenches) can damage the protective gas connection.

Tab. 2.1 Safety sign

3 Structure and function

3.1 Functional description

The **LG Findings welder** is a micro-pulse TIG welder. The welding process is controlled by the central control and regulation unit of the **LG Findings welder**. For a precise welding process and a perfect result, the welding process is continuously monitored and the target parameters are adjusted as required using control algorithms. The energy pulses generated by the power source are transferred to the workpiece via the handpiece included in the scope of delivery and its electrode, thereby carrying out the welding process.

Scope of delivery

The scope of delivery of the device includes:

- Handpiece with connection cable
- Power cord
- 3 m gas connection hose
- Contact cable with contact clamp
- Set of electrodes
- Collet for electrodes 0.6 mm + collet for electrodes 0.8/1.0 mm

3.2 General overview

*Fig. 3.1 Overview of **LG Findings welder** with handpiece*

1. **LG Findings welder**
2. Handpiece with connection cable

3.3 LG Findings welder

Fig. 3.2 ***LG Findings welder*** *Front*

1. Display
2. Settings button
3. Welding power (+/-) buttons
4. Handpiece connection socket (-) for the welding handpiece
5. Socket (+) for contacting tools
   For connecting contact elements such as contact terminals and clamps.
6. Pulse duration (+/-) buttons
7. Material / metal button
   Preselect material

*Fig. 3.3 **LG Findings welder** Rear*

1. Type plate
2. Connection socket for foot switch / electrode grinding motor
3. Connection socket for eye protection system
4. Main switch
5. Fuse compartment
6. IEC-60320 C14 socket
7. Mains voltage approved for this device
8. Hazard warnings
9. Protective gas connection

Type plate The type plate shows the most important technical data for the device.

Mains switch The mains switch can be used to disconnect the device from the power supply.

Fuse compartment The device fuse is located in the fuse compartment.

IEC-60320 C14 socket The mains cable supplied is connected to the mains socket.

Gas connection	The gas connection allows the connection of argon inert gas. The gas hose must have an outer diameter of 0.236 in (6.0 mm) and may carry a maximum pressure of 58 psi (4 bar).
Mains voltage approved for this device	The permissible mains voltage for the device is marked with a red dot-shaped marking and must not be exceeded.
Connection socket for foot switch / Connection socket for electrode grinding motor	A foot switch with M12 connection can be connected to this socket. An electrode grinding motor from the **LG Findings welder** accessories range can be connected to this socket. Both together can be connected with a T-connector (optional accessory).
Connection socket for eye protection system	An appropriate eye protection system from the **LG Findings welder** accessories range can be connected to this socket.
Hazard warnings	The hazard warnings indicate the hazards that can potentially arise from the device.

3.4 Handpiece with connection cable

Fig. 3.4 Handpiece with connection cable

1. Handpiece with argon nozzle
2. Connection cable
3. Handpiece plug

Handpiece with argon nozzle

The handpiece holds the welding electrode and enables the user to move the welding electrode to the workpiece in a targeted manner. The handpiece can be guided freely or clamped in a corresponding device (appropriate eye protection required). The nozzle with ceramic insert ensures the targeted gas supply at the welding location.

Connection cable

The connection cable contains both the cable guide for the power transmission and the hose for the gas supply to the handpiece.

Handpiece plug

The handpiece connector connects the handpiece firmly and gas-tight to the LG Findings welding device.

3.5 Optional accessory “electrode grinding motor” (item number 100 858)

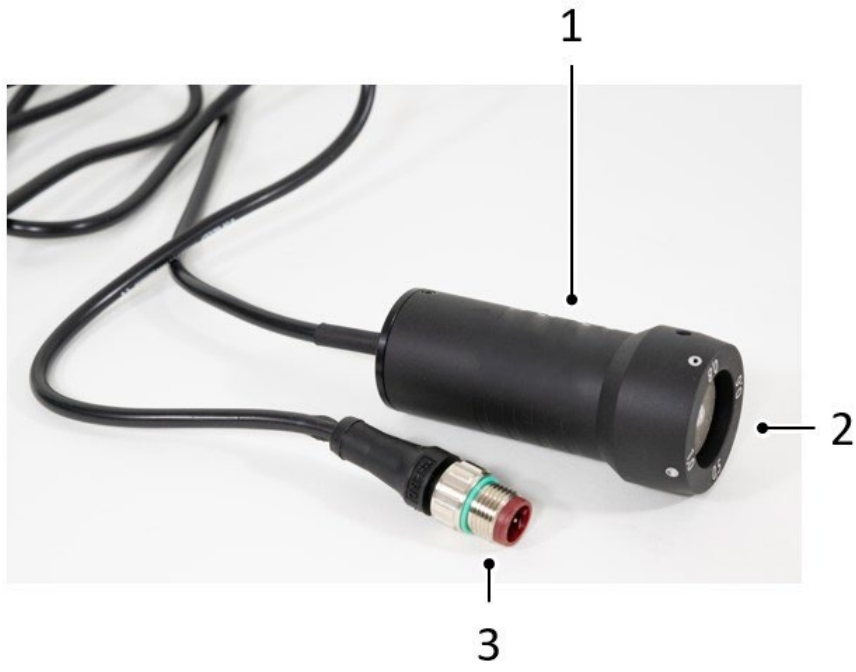


Fig. 3.5 Electrode grinding motor

1. Electrode grinding motor housing - base body
2. Diamond grinding wheel with flange
3. Connection cable with M12 plug

Diamond grinding wheel with flange

The diamond grinding wheel is used for grinding the electrodes and can be replaced if it shows signs of wear after prolonged use.

Electrode grinding motor - housing

The electrode grinding motor housing consists of a housing with guide holes (15° angle each):

- Ø 0.6 mm (0.0236 in)
- Ø 0.8 mm (0.0315 in)
- Ø 1.0 mm (0.0394 in)
- Ø 1.3 mm (0.0512 in)

and an on/off button.

Connection cable with plug

The connection cable is screwed with the M12 plug to the corresponding socket on the rear of the welding device housing.

3.6 Optional accessory “foot switch” (item number 100 850)

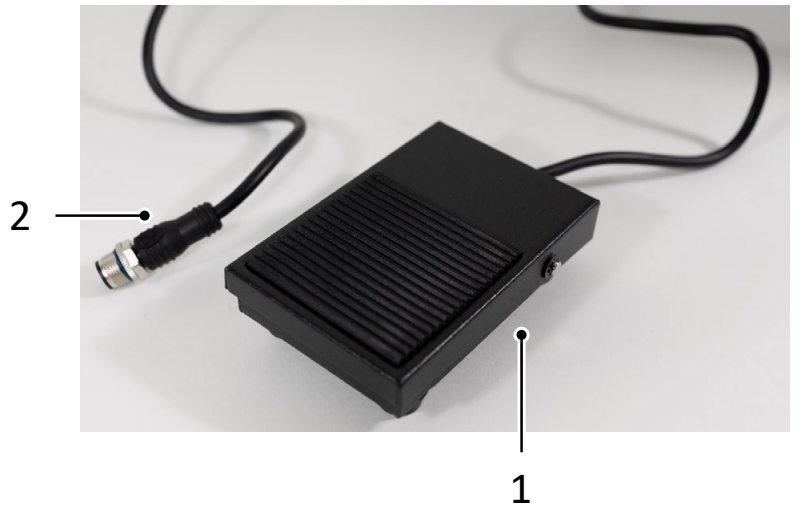


Fig. 3.6 Foot switch

1. Foot switch
2. Connection cable with M12 plug

Foot switch

The welding process can alternatively be triggered by pressing the foot switch. When the foot switch is active, automatic triggering by electrical contact (workpiece contact) is deactivated.

Connection cable with M12 plug

The connection cable is screwed with the M12 plug to the corresponding socket on the rear of the welding device housing.

3.7 Type plate

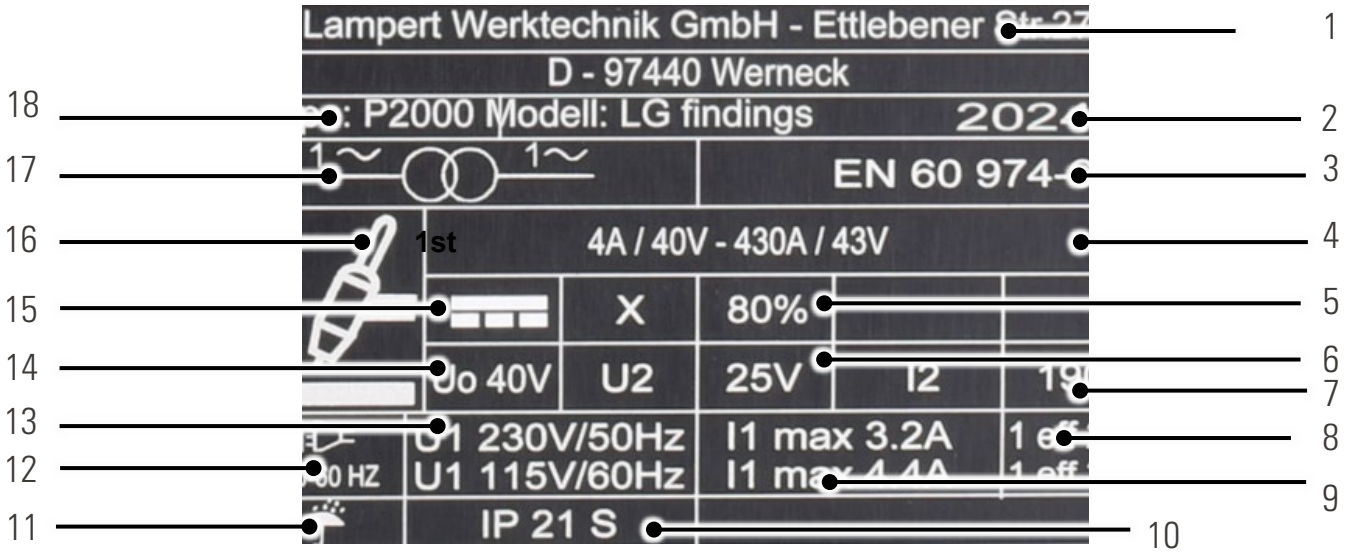


Fig. 3.7 Type plate

1. Manufacturer
2. Date of manufacture
3. Product standard
4. Minimum welding current and maximum welding current with corresponding standardised working voltage as well as maximum pulse duration.
5. Duty cycle in percent
6. Standardised working voltage
7. Standardised operating current
8. Maximum rated value of the mains current
9. RMS value of the largest mains current
10. Protection type
11. Keep away from precipitation
12. Mains circuit, rated frequency
13. Maximum rated welding current at 20 °C (68 °F) ambient temperature
14. No-load peak value
15. Symbol for the welding current: DC here
16. Symbol for the welding process: Tungsten inert gas welding here
17. Welding current source symbol: Single-phase transformer here
18. Manufacturer's type designation

4 Transport and storage

4.1 Transport

In principle, the welder can be carried and transported by hand without any special precautions. For longer transport distances, however, we expressly recommend packing the device in the original box or a similar suitable container. To avoid scratches or damage to the surface, it is also advisable to line transport containers with soft, dry and scratch-free materials (e.g. foam).

4.2 Storage

For longer storage, disconnect the mains plug and cut off the gas supply.

The storage location of the device must be dry and dust-free and must not be subject to extreme temperatures (colder than -20 °C or hotter than +55 °C).

5 Commissioning

5.1 Setting up the device

- The device must be free-standing and not covered with other objects.
- The ventilation openings of the device must be kept free.

Requirements for the location of use

- The device shall not be used outdoors.
- The device shall be used in dry rooms only.
- The device shall be used in a well-ventilated location.
- There shall be no direct draughts at the welding site.
- The device must be placed on a non-combustible surface.
- The device must be placed on a level (maximum angle of inclination 10°), stable and insulated surface

5.2 Establishing supplies

Electrical supply

Plug the mains cable with the mains plug into the mains socket on the back of the device. Then plug the mains plug into a socket with a suitable mains voltage.

Inert gas supply

WARNING

Pressurised containers

Fire and explosion hazard

➢ Check the tightness of gas cylinders and supply lines.

- Fasten an appropriate flow regulator to the shielding gas cylinder with the corresponding tool. ATTENTION: In doing so, observe the separate operating instructions provided by the manufacturer.
- Use only inert gases as shielding gas, e.g. argon 4.6

5.3 Connect eye protection

WARNING

Arc rays can burn eyes and skin

Risk of eye injury

- Only use original or certificated eye protection systems

Only appropriate original eye protection systems may be connected to the welding system! Other eye protection systems can lead to permanent health damage or damage to the welding device. The operating instructions of the respective personal protective equipment (microscope) must be observed.

The eye protection must be checked for correct function each time it is put into operation. The performance of this functional test is explained in more detail in chapter 6.3.

5.4 Insert the electrode into the handpiece

CAUTION

Welding electrode can cause injury

Risk of cut and puncture injuries

➢ Do not point the handpiece toward any part of the body or other people.

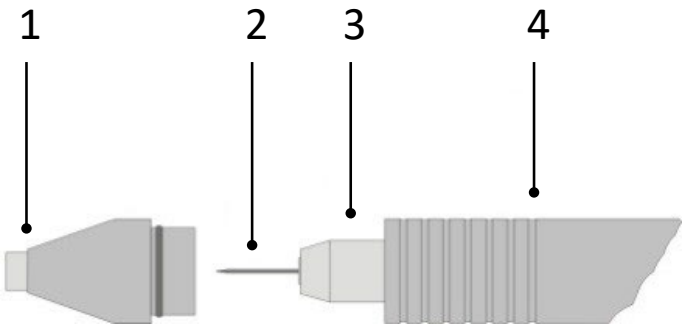


Fig. 5.1 Handpiece components

1. Argon nozzle
2. Tungsten electrode
3. Clamping nut with collet
4. Handpiece housing

Argon nozzle The argon nozzle with ceramic insert ensures the targeted gas supply at the welding location.

Tungsten electrode The tungsten electrode is used to make electrical contact with the workpiece. Since the arc created during the welding process is generated directly at the tungsten electrode, a well ground tungsten electrode must always be used to ensure an optimum welding result

Clamping nut with collet The clamping nut inside the handpiece ensures the tungsten electrode fit snugly in the collet by hand-tightening. The collet chuck and clamping nut in the handpiece hold the electrode firmly in the handpiece.

Handpiece housing The handpiece housing is used to attach, grip or guide the handpiece.

5.5 Adjusting the correct electrode length

NOTE

Only thorium oxide-free original electrodes may be used as electrodes.

Please always check that the machine is switched off, prior to exchanging the electrodes. This prevents uncontrolled triggering of the welding process.

1) When changing or inserting a new electrode, the following steps must be carried out:
   Lightly rotate the nozzle (10) back and forth and in doing so, pull it off of the handpiece (13). It is only pushed-on, not screwed in place.
2) Release the threaded electrode connection (12), insert a well sharpened tungsten electrode (11) and tighten up (hand-tight – do not use a tool to tighten).
3) If a different electrode diameter shall be used, the collet chuck might also have to be changed accordingly. To do this, completely loosen and remove the clamping nut and then pull the collet out and insert a matching collet. Screw the clamping nut back on.
4) Now replace the nozzle.
5) The electrode must protrude approx. 4 – 6 mm out of the nozzle (Fig. 5.3).
6) Welding can now be resumed with the new electrode.

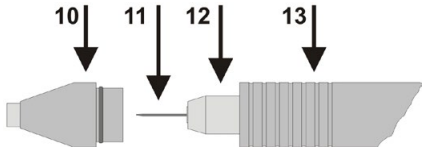


Fig. 5.2 Handpiece

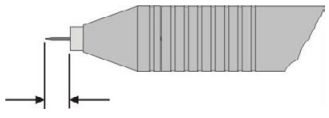


Fig. 5.2 Electrode length adjustment

5.6 Connecting the handpiece

Screw the connector plug of the handpiece into the handpiece socket on the front of the device. To do this, screw the nut on the handpiece connector hand-tight as far as the thread will allow. This is important to ensure proper electrical contact and that no gas can escape from the system.

5.7 Connecting the contact clamp

Insert the black contact clamp supplied into the left socket, marked plus.

5.8 Connecting optional accessories

The optional accessories (e.g. grinding motor or foot switch) are connected via the M12 plug attached to the connection cable. The respective sockets on the back of the device are colour-coded for this. Always tighten the plugs only hand-tight.

6 Operating the device

The graphical user interface has the following basic functions:

- Setting the welding parameters
- Performing test functions

6.1 Display

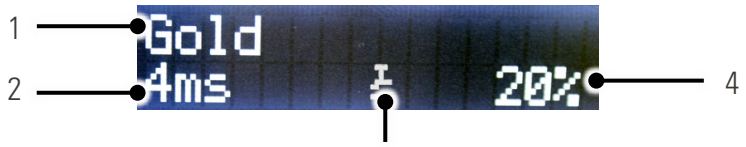


Fig. 6.1 Display

1. Material or welding program
2. Pulse duration in milliseconds (ms)
3. Foot switch activated (optional accessory, item no. 100 850)
4. Welding power in percent (%)

6.2 Material selection

Fig. 6.2 Material selection

By pressing the **M** button, you select the material to be processed. The following options are available for selection:

Material designation
Universal
Gold
Silver

6.3 Settings button

Fig. 6.3.1 Settings selection

By pressing the ⚙ button you navigate through the settings. The following options are available for selection:

Settings	Options
Filter/Gas - Test	On, off
Language	German, English, Spanish
Welding beep	On, off

Fig. 6.3.2 Welding power buttons

In the menu area the welding power buttons can be used to switch between the respective options.

Gas- / Filter-Test: Pressing the welding power (+/-) buttons causes the gas valve to be opened and repeated switch-over of the eye protection filter from light to dark. This function is important in order to set the correct gas flow on the flow regulator (see chapter 7.2) and enables correct function of the eye protection filter to be checked. Pressing the buttons again causes the gas valve to be closed and quits the gas / filter test.

Welding signal tone: Press the welding power (+/-) buttons to activate or deactivate the acoustic signal that notifies the triggering of the weld.

Language: The system can be switched between German, Spanish and English by pressing the welding power (+/-) buttons.

6.4 Pulse duration

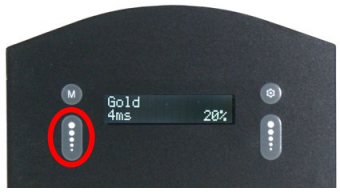


Fig. 6.4 Pulse duration

The pulse duration / welding time button determines for how many milliseconds the welding power is applied, i.e. a longer pulse duration results in a longer and deeper application of the energy to the workpiece and thus simultaneously a greater development of heat.

With very thin materials or wires it is recommended to use a shorter welding time, primarily when welding near to heat-sensitive materials. Welding times of no more than 4 ms are recommended here.

With highly conductive metals a longer welding time can be advantageous in order to avoid hot cracks, starting at 10 ms.

6.5 Welding power

Fig. 6.5 Welding power

The welding power or the strength of welding energy is set with the power control buttons.

The size and intensity of the welding points are controlled in this way, i.e. the higher the power the larger the welding point.

With very thin materials too high a power level can also quickly result in damage, i.e. it makes sense to experiment with samples for beginners with the LG Findings welding system to find the optimum power level, starting at a power of 20 %. Power settings between 35 and 50 % are considered medium welding powers.

With highly conductive alloys in particular it is generally not practical to increase the power level above 50 % as the metal will otherwise very quickly start to spatter instead of welding.

Other metals can be welded with higher power levels. A very high power level is not practical in the most usual circumstances. There is a danger of inhomogeneous welds and only experienced users should work in this range.

7 Using the LG Findings welder

7.1 Switching on the LG Findings welder

CAUTION!

Danger due to operating errors

As soon as the device is switched on at the mains master switch, voltage is applied to the contact tools. If these come into contact with electrically conductive or earthed parts such as the casing this can lead to undesired erroneous welding.

➢ Keep electrically conductive parts and earthed housings away from the welding equipment.

DANGER!

Hazard due to electromagnetic radiation

Pacemakers and other medical implants can be damaged due to electromagnetic radiation. Cables carrying welding current must also not be wrapped around the body. Both can lead to the complete failure of medical implants.

➢ The device generates a strong electromagnetic field during operation. If you are a medical implant user, check with the implant manufacturer or an authorised medical professional before using the device. If use is possible, clarify the required minimum distance in advance and do infringe upon this distance at any time when working with the device.

Proceed as follows:

1) Make sure that the mains cable is connected to the device and the socket.
2) Check the gas connection and carefully open the gas cylinder valve.
3) Set the power switch to "I".
4) Read the safety instruction on the display and confirm it by pressing one of the touch controls.

✓ The device is now ready for operation

7.2 Adjusting the gas flow

Before the welding process can be started, the flow must be set correctly.

Proceed as follows:

1) In order to configure the correct gas flow, activate the "Gas- / Filter-Test" (see chapter 6.3). This opens the gas valve in the welding device.
2) Now set the flow regulator to the correct flow rate of approx. 2 – 3 litres/min. In doing so, also observe the instructions provided with the flow regulator.
3) Once the gas flow is correctly adjusted, quit the "Gas- / Filter-Test" by pressing the corresponding button.

✓ The gas flow is now set correctly.

7.3 Welding with the LG Findings welder

CAUTION

Hot surfaces

Danger of burns to the skin

➢ It is absolutely essential to wear gloves when welding.

WARNING

Optical radiation

Danger of eye damage

➢ Suitable eye protection must always be worn during welding.

Proceed as follows:

1) Check the **function of the eye protection filter**. To do this, connect the eye protection system to the welding device. Activate the eye protection test in the settings menu of the welding device “Gas-/Filter-Test” (see chapter 6.3). This must darken the field of vision. This can be checked by looking through the oculars. After having deactivated the function “Gas-/Filter-Test”, the LED illumination will be visible again when looking through the eye protection system.
2) Check the **flow rate of the gas**. The optimal flow rate is 2 - 3 litres/minute (see chapter 7.2).

3) Select the **welding parameters**:

   The metal to be welded is selected by means of pressing the button “M”.

   The pulse duration (in milliseconds) can be changed at any time with the corresponding buttons.

   The welding power can also be changed at any time with the corresponding buttons.

4) Free the **workpiece** from any contamination with a suitable cleaner.

5) Connect a metallic blank section of the workpiece with the **contact clamp**.

6) **Move the workpiece towards the tip of electrode**.

7) **Apply only light pressure** to establish contact between the workpiece and the electrode. The welding process now starts automatically.

8) Do not release the contact between the workpiece and the electrode until the welding process is finished.

9) By touching the workpiece again, you can **trigger the next welding process.**

TIP: Always work with a well ground electrode.

7.4 Switching off the LG Findings welder

Proceed as follows:

1) Set the contact clamp down such that no accidental contact can take place.
2) Switch off the device at the main switch on the back of the device.
3) Close the valve on the gas cylinder.

✓ The device is switched off.

7.5 Basic information and tips

- The quality of the welding result depends essentially on the quality of the grinding of the electrode.
- Perfect electrical contact of the workpiece to the contact terminal must always be ensured, i.e. the workpiece should be connected to the terminal of the connecting cable or via a contacting tool at a metallically bright point.
- The contact pressure to the electrode tip should only be light.
- A gas flow rate of approx. 2-3 litres/minute is recommended. The gas flow should be checked regularly at the flow controller and readjusted if necessary.
- The angle at which the workpiece touches the electrode tip significantly influences the flow direction of the spot weld.

8 Trouble shooting

No.	Fault	Possible cause	Fault rectification / solution
1	Main power switch on, but device does not start.	Mains cable interrupted	Check mains cable and mains voltage
		Device fuse blown	Replace device fuse with identical fuse
2	Device switched on, but welding process does not start	Cable connection interrupted	Check all cable connections
		Connection with the workpiece interrupted	Check connection to the workpiece
		Fault due to leakage current	Switch device off and on again. If the fault is not corrected, please contact customer service
3	Mains protection trips	Mains fuse rating too low	Fuse mains properly
		Mains protection trips while the device is in standby	Contact customer service
4	Poor welding characteristics	Incorrect shielding gas	Use inert shielding gas (e.g. Argon 4.6)
5	Poor ignition characteristics	Electrode clamped loosely in hand piece	Tighten the clamping nut on the handpiece by hand
6	Oxidation and rusting	Excessive gas pressure	Reduce flow rate – ca. 2 l/min
7	Severe oxidation of the welding points	Incorrect shielding gas	Use inert shielding gas (e.g. Argon 4.6)
8	Tungsten embedded in base material	Excessive pressure of the electrodes on the workpiece	Touch workpiece with extremely light pressure
9	Tungsten electrode welds to workpiece	Excessive pressure of the electrodes on the workpiece	Touch workpiece with extremely light pressure
10	Tungsten electrode melts off immediately	Electrode ground too steeply	Use the recommended grinding angle (approx. 15°)
11	Static discharge over the surface of the device	Special local conditions	Use special foot mat for the workspace
12	Device begins to weld immediately when touching the workpiece (no gas pre-flow)	Malfunction	Immediately put the device out of operation and contact customer service

Tab. 8.1 Causes of errors and fault rectification

9 Care and inspection work

The device must always be switched off before care and inspection work.

9.1 Care and inspection schedule

Interval	Care and inspection work	Comments
Daily	Check working environment	Clean if necessary
	Check the condition and cleanliness of the device	Clean if necessary
	Check the gas hose for leaks	
As required	Clean the screw connection of the electrode in the handpiece to ensure electrical contact.	
	The electrode can be reground.	Replace electrode when worn out.

Tab. 9.1 Care and inspection schedule

9.2 Carry out care and inspection work

Cleaning the LG Findings welder

- Use a dry / slightly damp cloth to remove dust and carefully clean the surfaces of the device.
- A non-abrasive glass cleaner (e.g. spectacles cleaner) can be used for the screen on the front of the display.

Regrinding of the tungsten electrodes

1) Switch off the device.
2) Remove the electrode from the handpiece.
3) Use an electrode grinding motor with a fine or medium-fine grinding wheel to grind the electrode.
4) Grind the electrode at a 15° angle. With the grinding motor from the LG Findings welder original accessories, this angle is predetermined by the guide holes.

✓ Now the electrode can be reinserted into the handpiece.

10 Disposal and recycling

Render discarded devices unusable by removing the mains cable.
Only for EU countries: In accordance with European directive 2012/19/EU regarding the disposal of used electrical and electronic equipment, discarded electrical devices must be separated and collected and sent for recovery in an environmentally friendly manner.

11 Dimensions and technical data

11.1 Dimensions of the LG Findings welder

Name		Value	Unit
Weight		6.55	kg
Dimensions	Length	276	mm
	Width	168	mm
	Height	150	mm

Tab. 11.1 Dimensions of the LG Findings welder

11.2 Technical data for the LG Findings welder

Name		Value	Unit
Electrical connection			
Voltage (supply)	L+N+PE	230	V AC
Frequency		50-60	Hz
Fuse/breaker protection provided by the operator Tripping characteristics:		B	
Power consumption		300	W
Max. current		4.4	A
Protection class per EN 61140:2016		Protection class I	
Closed-circuit voltage		25 – 43 V	
No-load voltage		43 V	
Duty cycle X		80 %	
General data			
Max. operating temperature		60	°C
Max. outside temperature	Transport/storage	-20 - +55	°C
	Operation	-10 - +40	°C
Relative humidity		Up to 50 % at 40 °C Up to 90 % at 20 °C	
Max. location altitude (above sea level)		1000	m
Protection type per EN 60529:2014		IP21S	
Shielding gas		argon	
Maximum gas pressure		4 bar	

Tab. 11.2 Technical data for the machine

12 Appendix

12.1 Service address

If you have any problems with your LG Findings welder, please contact the manufacturer directly:

Lampert Werktechnik GmbH
Ettlebener Strasse 27
97440 Werneck
Germany
+49 9722 9459 0
mail@lampert.info

12.2 Spare and wear parts

Only original spare and wear parts may be used for your LG Findings welder. These are listed in the spare parts catalogue and on the manufacturer's website.

12.3 CE conformity

EU declaration of conformity

in accordance with the Low-Voltage Directive 2014/35/EU, Annex IV

Original

LAMPERT. PRECISION WELDING

The manufacturer bears the sole responsibility for issuing this declaration of conformity

Lampert Werktechnik GmbH

Ettlebener Straße 27

97440 Werneck

Germany

Object of this declaration

Product / Article	Microarc spot welding device
Model number	620 3
Type	P2000
Commercial name	LG Findings Welder
Model	LG Findings

The object of the declaration described above meets the relevant harmonisation legislation of the European Union:

2014/35/EU	Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits Published in 2014/L 96/357 of 29.03.2014
2014/30/EU	Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (recast) Published in 2014/L 96/79 of 29.03.2014
2011/65/EU	Corrigendum to Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment Published in 2014/L 44/55 of 14.02.2014

Applied harmonised standards:

EN 60974-6:2016	Arc welding equipment – Part 6: Limited duty equipment
EN 61000-6-2:2005	Electromagnetic compatibility (EMC) – Part 6-2: Generic standards - Immunity for industrial environments
EN 61000-6-4:2007/A1:2011	Electromagnetic compatibility (EMC) – Part 6-4: Generic standards - Emission standard for industrial environments
EN 61000-3-2:2014	Electromagnetic compatibility (EMC) – Part 3-2: Limits - Limits for harmonic current emissions (equipment input current <=16 A per phase) (IEC 61000-3-2:2018)
EN 61000-3-3:2013	Electromagnetic compatibility (EMC) – Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection
EN 50581:2012	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Additional information: none

Signed for and on behalf of:

LAMPERT. PRECISION WELDING
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Ettlebener Str. 27 - 97440 Werneck
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Werneck, 10.09.2024

Place, Date	Dr. Martin Plöckinger CEO	Jürgen Fuchs Head of Research and Development

1/1

LAMPERT.
PRECISION WELDING

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