

Instruction Manual

Arc Welder

62418



Illustration similar, may vary depending on model

Please read and follow the operating instructions and safety information prior to initial operation.

Technical changes reserved!

Illustrations, functional steps, and technical data may deviate insignificantly due to continuous further developments.

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Introduction

Thank you for choosing to purchase this quality product. To minimise the risk of injury, we ask you to always take some basic safety precautions when using this product. Please read this operating manual carefully and make sure that you understand it. Keep these operation instructions in a safe place.

This welding machine is suitable for electrode welding with coated electrodes melting. The welding current can be continuously set with the help of the welding current regulation knob on the front of the device.

Intended use

- This device may only be used according to the intended use. Each use exceeding the intended use is forbidden!
- The user is responsible for damages or injuries of all kind caused by incorrect use.
- You may only use welding electrodes suitable for use with the device.
- Compliance with the safety, assembly, and operation instructions of this manual is also part of the intended use.
- Persons using and maintaining the device must be familiarised with it and be informed about all possible dangers. Furthermore, the applicable accident prevention regulations are strictly to be followed.
- You must also obey general instructions on occupational health and safety engineering.
- If the device is modified in any way, the manufacturer is no longer to be held responsible for damages caused by these modifications.
- The device is not designed for commercial, artisanal, or industrial use, but for private hobby/DIY use only. All further use is explicitly forbidden and is not considered as intended use.

Safety instructions



Read manual!



Use welding mask!



Use mask!



Wear protective clothing!



Wear hand protection!



Wear hearing protection!



Wear feet protection!

ATTENTION: Should you hand over the device to a third party, do also hand over the manual/safety instructions. We are not to be held responsible for any accidents or damages caused by non-compliance with this manual or the safety instructions.

ATTENTION: For your own safety, operate the welding machine **AFTER** reading the safety instructions.

ATTENTION: Only use the device according to the intended use defined in this manual. It must **NOT** be used

- in rooms without sufficient ventilation,



- in damp or wet zones,
- in explosive zones,
- for defrosting pipes,
- near persons with pacemakers,
- near easily inflammable material.

Each improper operation of this welding device might cause material damage and danger to persons or animals. The user of this device is responsible for his or her own safety and the safety of other persons. Thus, do read this manual and obey the regulations precisely.

General safety instructions

- **Comply with the safety and accident prevention regulations.** In addition to the instructions in this manual, you must obey the legal general safety and accident prevention regulations.
- **Hand over this manual to third parties.** Make sure that third parties only use this product after receiving the necessary instructions.
- **The device is not intended for use by persons with impaired or limited physical, sensory, and mental abilities or lack of experience and/or real knowledge, unless they are supervised by a person responsible for their safety or follow the instructions made by this person on how to correctly use the device. Children should be supervised to ensure that they do not play with the device. Children must not use this device.**
- **Always pay attention and fully concentrate on your work.** Do not perform work with this product when being unalert or influenced by alcohol, drugs, or medicine. Even a short moment of inattention during the use of this device might cause severe accidents and injuries.

Safety instructions concerning the use of the welding machine

- **Make for a secure stand.** Make sure to mount the device on a stable and safe surface.
- **Avoid contact with hot parts.** Do not touch any hot parts of this device. Keep in mind that various components, storing heat, might cause burns even after the use of this device.
- **See for any damages.** Before using the device, check it for possible damages. Should the device be damaged, it must not be put into operation.
- **Do not use sharp objects.** Never introduce sharp and/or metallic objects in the inside of the device.
- **Do not misuse.** Only use the device according to the intended use defined in this manual.
- **Perform regular checks.** The use of this device can cause wear and tear of certain parts. Therefore, regularly check the device for possible damages and faults.
- **Correct use of the power cable.** Never pull out the plug by pulling on the power cable and protect all cables from oil, sharp edges, and high temperatures. During work, make sure not to touch the cables with hot objects. The power cable must not be damaged. If the connection line is damaged, it must be replaced with a new one.
- **During operation, the device should not be confined or placed directly at a wall** so that enough air is always let in through the louvres.
- **Arc welding causes sparks, melting of metal parts, and smoke.** Therefore, make sure to remove all inflammable substances and/or material from the working zone.
- **Do not weld on containers, receptacles, or pipes that have contained inflammable liquids or gases.**
- **Avoid any direct contact with the welding circuit;** no-load voltage forming between the electrode holder and earth terminal can be dangerous.
- **Do not store or use the device in damp or wet zones or in the rain.**

ATTENTION:

- Welding arc radiation can cause eye damages and skin burns.
- Sparks and drops of melted metal form during arc welding. The welded piece begins to glow and stays hot during quite a long time.
- Vapours that might be harmful form during arc welding.
- Every electric shock might be deadly.



- Define safety distances for the welding zone and make sure that unauthorised persons and/or persons not wearing protective clothing cannot enter the work zone. Danger by flying sparks!
- Protect yourself and bystanders from all possible dangers caused by arc welding.

Hazard sources during arc welding

Many hazards are caused by arc welding. Therefore, it is very important that the welder obeys the following regulations for not to endanger himself or herself or other persons and to avoid damages to the device and persons.

- **Should contact voltages form**, immediately switch off the device and have it checked by a qualified person.
- **Make sure that all electric contacts on the welding-current side are always in good condition.**
- **During welding, always wear insulating gloves on both hands.** They will protect you from electric shocks (e.g., cause by no-load voltage of the welding circuit), harmful radiation (warmth and ultraviolet rays), glowing metal, and slag splashes.
- **Wear solid insulating footwear;** the shoes should keep their insulating feature in wet conditions. Mid-height footwear is not suitable, for glowing metal drop falling can cause burns.
- **Wear suitable clothing**, no synthetical clothing.
- **Do not look into the welding arc without eye protection;** only use a welding helmet with protective glass according to DIN. Besides light and heat radiation causing glares and burns, the welding arc also emits ultraviolet rays. If the protection is inadequate, these invisible ultraviolet rays cause very painful conjunctivitis (pinkeye) that only becomes noticeable a few hours later. In addition, the ultraviolet radiation acts like a harmful sunburn on unprotected parts of the body.
- **Persons or assistant near the welding arc must be informed about the dangers and be equipped with the necessary protection means;** if necessary, mount protective panels.
- **No welding works may be performed on containers where gases, fuels, mineral oils, etc. are stored or have been stored, even in case they have been emptied a long time ago; residues might cause explosions.**
- **There are special regulations for welding work to be performed in rooms with an inflammable or explosive ambiance.**

Risk of accident caused by electric shocks

With no welding arc burning, there is a no-load voltage U_0 between the earth terminal and electrode holder. This voltage can be dangerous to life if the welder touches the metal clamping jaws of the electrode holder and the piece with unprotected hands.

- **Narrow and hot rooms: Performing work in narrow or hot rooms** is a special risk situation that necessitates additional, special protective clothing to be worn. Insulating pads (e.g., rubber mats, wood grates, etc.) must possibly be used.
- **Risk of accidents caused by deficiency of air in narrow rooms: Considerable quantities of vapour and gas form during welding.** Make sure that vapours and gases can escape through suitable vents. However, do not take in oxygen. This would increase the risk of fire.
- **Protective clothing: During work, the welder's entire body must be protected from radiation and burns by wearing clothing and facial protection.**
- **Fire hazard due to flying sparks: If melted or glowing metal and slag drops fall on inflammable material, this might inflame and cause a fire. Therefore, remove any inflammable objects from the work zone before beginning to weld.**
- **Explosion hazard: Both welding sparks and the high-heated welding spot might cause explosions. Therefore, do not use the device inside explosive zones with inflammable liquids, gases, and paint mists present.**

Furthermore, note the following:



- Immediately remove the electrode from its holder after finishing welding work to avoid a welding arc from accidentally forming.
- During operation of the device, do not put the electrode holder on the welding machine or on any other electric device.
- Before finishing work, do not touch the electrode or another metal objects in contact with the electrode.
- Immediately disconnect the power supply after finishing welding work.
- Make sure that no cable wraps around your body.
- **Make sure that you do not stand between the earth terminal and electrode holder during welding. The electrode holder and earth terminal must always be on the same side.**

Residual risks

Despite obeying to the intended use, residual risks cannot be fully excluded. Due to the type and design of the device, the following risks can result:

- a) eye injuries by glazing,
- b) injuries caused by burns after touching hot parts of the device or piece,
- c) risks of accident and fire caused by flying sparks or slag particles when not being sufficiently protected,
- d) harmful emission of vapour and gases with deficiency of air or insufficient extraction inside closed rooms.

To ensure that you can enjoy your welding machine for a long time, it should regularly be maintained and cleaned. We recommend half-yearly maintenance. When often using the device, you should adapt the maintenance interval. Completely disconnect the welding machine from the power supply before performing maintenance works. The machine is largely maintenance-free. However, the following works should be performed:

- Keep the safeguards, vents, and motor housing as free of dust and dirt as possible. Rub the device with a clean cloth and remove rougher dirt with the help of compressed air the pressure of which should be as low as possible.
- The device should be cleaned after each use.
- Check the condition of the welding cables, electrode holder and earth terminal.
- The electrode holder must regularly be cleaned from weld spatters and contaminations. Apply release agent after cleaning to reduce adhesiveness for spatters.
- Worn or damaged insulation of cables and live parts of the device is dangerous and might cause the device malfunctioning.
- Check whether all screw, bolts, and nuts are firmly tightened. Should they be loose, re-tighten them.

Technical specifications

Output current (A)		60–200
Intake voltage (V)		230/400
Frequency (kg)		50/60
Nominal intake current (kVA)		10.7
No-load voltage (V)		50
Operation cycle (%)		10
Diameter of electrodes (mm)		1–5
Weight (kg)		22
Insulation class		H
Size (mm)		365×185×252
Length of cables (m)	Electrode holder	1.60
	Earth terminal	1.10
	Power cable	1.90
	230 V adaptor cable	0.40

Mounting the welding machine

The welding machine should be mounted on a spot that

- is flat and as free of vibrations as possible,
- has a minimum distance of 200 mm from the wall,
- is clean and dry – it should be free of iron powder, dust, and paint –,
- is not exposed to rain or water in general.

Connections

Earthing

- There is an earth connection under the lateral housing cover. Always make for sufficient earthing to avoid static electricity from forming.
- Only have earthing done by an electrician or a qualified person. Only use a suitable earth cable.





No	Name
1	Vents
2	Electrode holder connection
3	Earth terminal connection
4	Welding current adjusting knob
5	Temperature display
6	Operation light
7	Voltage switch
8	Handle
9	Adjustment screw

Mains connection

- Before connecting the device to the mains, make sure that the data on the nameplate match the mains.
- The device may only be operated on a properly earthed and secured socket: 16 A with 230 V and 32 A with 400 V.

Note the following to avoid risks of fire, electric shocks, or personal injuries:

- Never use the device on a 400 V mains voltage when it is set to 230 V. **Caution: Fire hazard!**
- Disconnect the device from the mains before adjusting the nominal voltage.
- It is forbidden to change the nominal voltage while the device is in operation.
- Before using the welding machine, make sure that the nominal voltage switched to of the device matches the voltage of the power source.
- The welding machine is equipped with a 400 V plug. If the device is used with 230 V~, use the adaptor cable provided.

Electrode welding (welding with coated electrodes)

The welding cable with the electrode holder and the welding cable with the earth terminal are already connected to the connecting points accordingly marked of the welding device.



Operate the electrode holder lever and plug the electrode in its holder.



Before adjusting the welding machine, the earth terminal must be connected. The terminal should be placed as near as possible to the welding seam. Should you use a welding table, the terminal may be connected to the table, otherwise, it must be connected directly to the piece.

You can adjust the desired welding current with the welding current adjusting knob (knob on front of the welding device above the welding cable connections). Turn the knob clockwise to increase the welding current – turn it counter-clockwise to reduce the welding current.

The welding current needed depends on the diameter of the electrode connected, thickness of the piece, and welding depth desired or weld pool size.

After having done all mounting and adjusting work for the welding type you wish to perform, and having connected the welding device electrically, proceed as follows:

- Remove all grease, dirt, rust, and paint from the welding point.
- Check the settings made on the welding device.
- Check your personal safety equipment and work place safety lest you or other persons be endangered.
- The welding helmet must be used during the whole welding process. It protects your eyes from harmful ultraviolet radiation and heat emitted by the welding arc.

Information on the welding process

- Hold the welding helmet in front of your face and rub the electrode tip on the weld seam as you would when lighting a match. This is the best way to ignite the arc. **Attention!** Do not hit the electrode on the piece. This could damage the coating and make the ignition of the welding arc difficult. It can happen that the electrode is not withdrawn quickly enough and therefore gets stuck to the workpiece. In this case, it must be withdrawn with a courageous sideways pull.
- As soon as the welding arc ignites, try to keep the distance to the workpiece constant so that it is 1–1.5 times larger than the diameter of the electrode. Hold the electrode in a 70–80° angle to the piece. If the angle is too large, slug will flow under the weld pool, if the angle is too small, the arc will wobble and splash. In both cases, the welding seam will become porous and unstable.
- It is very important to keep the length of the welding arc constant, for its alteration will also alter the welding current and voltage. Too low or too high a welding current will impair the welding seam.
- When finishing the welding seam, the electrode should be drawn away over the seam to avoid a porous end crater from forming.
- Slug may only be removed from the seam after cooling down. If resuming welding on an interrupted seam, first remove all slug from the spot where to resume welding. The arc is ignited in the seam groove and is moved to the spot where to resume welding. This spot is correctly melted on. After that, the welding seam is resumed.

The less experienced will find it difficult to form a good arc, i.e., to find the correct setting of the welding current and the speed at which the welding electrode is moved forward.

- You determine the best setting and speed by performing tests on test material.
- A well-set welding arc has a smooth, regular tone. Adapt the welding depth to the thickness of you piece. The welding depth should be as deep as possible, but should not exceed the depth of the piece to avoid holes form forming.

Attention!

Always use tongs to move welded hot pieces or remove used-up hot electrodes.

Note that, after welding, the electrode holder must always be placed on an insulated surface.

After welding and during breaks, always switch off the welding device and pull out the plug.

Regulations for waste disposal

The Waste Electrical and Electronic Equipment Directive (WEEE Directive, 2012/19/EU) of the EU was implemented in the German law related to electrical and electronic equipment and appliances.

All WiTec electric devices that fall under the WEEE directive are labelled with the symbol of a crossed-out wheeled rubbish bin. This symbol indicates that this electric device must not be disposed of with the domestic waste.

WiTec Technik GmbH is registered with the German registration authority EAR (Stiftung Elektro-Altgeräte Register) under the WEEE-registration number DE45283704.

Disposal of used electrical and electronic devices (intended for use in the countries of the European Union and other European countries with a separate waste collection system for these devices).

The symbol on the packaging or the product itself indicates that this product must not be treated as normal domestic waste but must be disposed of at a recycling collection station for electrical and electronic waste.

By disposing of this product correctly, you contribute to the protection of the environment and the health of your fellow people. Inappropriate disposal threatens the environment and health.



Material recycling helps to reduce the consumption of raw materials.

Additional information about the recycling of this product can be provided by your local commune, the municipal waste disposal facilities, or the store where you purchased the product.

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