

USER'S MANUAL

IGBT Inverter Technology
Plasma Cutting Power Sources

CUT **70** IGBT

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Introduction

First of all, thank you for choosing an IWELD welding or cutting machine!

Our mission is to support your work with the most up-to-date and reliable tools both for DIY and industrial application.

We develop and manufacture our tools and machines in this spirit.

All of our welding and cutting machines are based on advanced inverter technology, reducing the weight and dimensions of the main transformer.

Compared to traditional transformer welding machines the efficiency is increased by more than 30%.

As a result of the technology used and the use of quality parts, our welding and cutting machines are characterized by stable operation, impressive performance, energy efficient and environmentally friendly operation.

By activating the microprocessor control and welding support functions, it continuously helps maintain the optimum character of welding or cutting.

Read and use the manual instructions before using the machine please!

The user's manual describes the possible sources of danger during welding, includes technical parameters, functions, and provides support for handling and adjustment but keep in mind it doesn't contain the welding knowledge!

If the user's manual doesn't provide you with sufficient information, contact your distributor for more information!

In the event of any defect or other warranty event, please observe the „General Warranty Terms”.

The user manual and related documents are also available on our website at the product data sheet.

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WARNING!

Welding is a dangerous process! The operator and other persons in the working area must follow the safety instructions and are obliged to wear proper Personal Protection Items. Always follow the local safety regulations! Please read and understand this instruction manual carefully before the installation and operation!

- The switching of the machine under operation can damage the equipment.
- After welding always disconnect the electrode holder cable from the equipment.
- Always connect the machine to a protected and safe electric network!
- Welding tools and cables used with must be perfect.
- Operator must be qualified!

ELECTRIC SHOCK: may be fatal

- Connect the earth cable according to standard regulation.
- Avoid bare hand contact with all live components of the welding circuit, electrodes and wires. It is necessary for the operator to wear dry welding gloves while he performs the welding tasks.
- The operator should keep the working piece insulated from himself/herself.

Smoke and gas generated while welding or cutting can be harmful to health.

- Avoid breathing the welding smoke and gases!
- Always keep the working area good ventilated!

Arc light-emission is harmful to eyes and skin.

- Wear proper welding helmet, anti-radiation glass and work clothes while the welding operation is performed!
- Measures also should be taken to protect others in the working area.

FIRE HAZARD

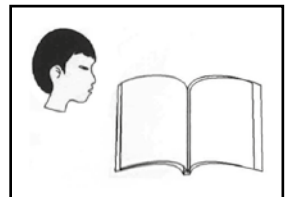
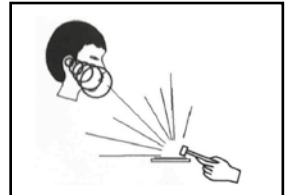
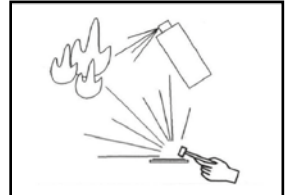
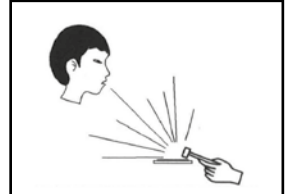
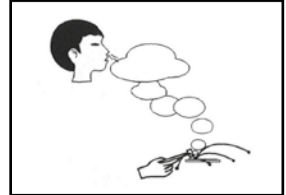
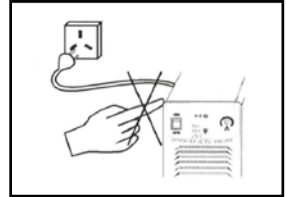
- The welding spatter may cause fire, thus remove flammable materials from the working area.
- Have a fire extinguisher nearby in your reach!

Noise can be harmful for your hearing

- Surface noise generated by welding can be disturbing and harmful. Protect your ears if needed!

Malfunctions

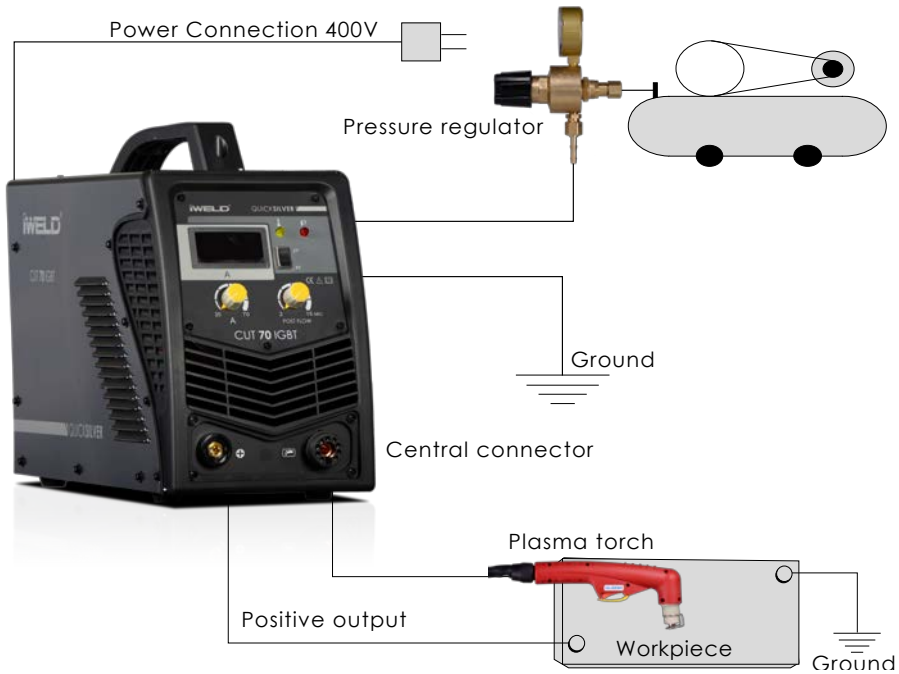
- Check this manual first for FAQs.
- Contact your local dealer or supplier for further advice.



Main parameters

		CUT 70 IGBT	
	Art. Nr.	800CUT70IGBT	
FUNCTIONS	Inverter Type	IGBT	
	Arc Ignition	HF	
	THC - Torch Height Control	x	
	DUAL AIR SYSTEM - Built-In Air Compressor	x	
	Digital LED Display	✓	
	CNC Compatibility	x	
	2T/4T	✓	
PARAMETERS	Accessories Plasma Torch	CUT81	
	Max. cutting thickness (Scarp cutting) Carbon Steel	30 mm	
	Optimal cutting thickness (quality surface cutting)	Carbon Steel	25 mm
		Stainless Steel	20 mm
		Aluminum	15 mm
		Copper	12 mm
	Phase Number	3	
	Rated Input Voltage	3x400V AC ±10% 50/60Hz	
	Max./eff. Input Voltage	13.8A / 10.7A	
	Power Factor (cos φ)	0.93	
	Efficiency	85 %	
	Duty Cycle (10 min/40 °C)	70A@60% 54A@100%	
	Cutting Current Range	20A - 70A	
	Cutting Voltage Range	88V - 108V	
	No-load Voltage	280 V	
Insulation	F		
Protection Class	IP21S		
Weight	30 kg		
Dimensions (LxWxH)	480 x 220 x 380 mm		

2. Installation



The connection diagram of the cutter is shown above.

Be sure to use this welding machine with the specified cutting gun, earth clamp together; otherwise, it will affect the welding performance and may damage the machine.

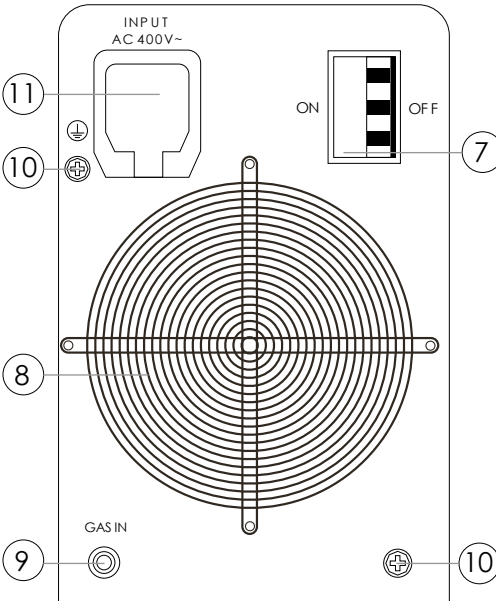
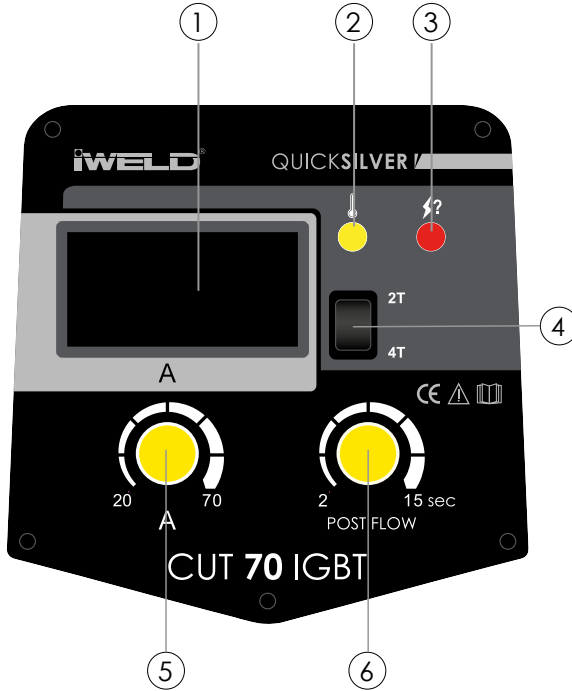
- Connect the output terminal of the compressor to the input terminal (IN) of the pressure reducing valve via the air duct, and tightly connect the output terminal (OUT) of the pressure reducing valve to the copper tube on the rear of this machine via high-pressure leather hose.
- Connect the copper nut on the cutting gun with the pneumatic output terminal on the front of this machine, and tighten this nut clockwise (to prevent gas leakage); connect the rapid socket on the earth clamp with the positive output terminal on the front panel of the cutter and tighten the socket.
- Connect the switch plug on the cutting gun with the switch connector of the cutting gun on the panel. Screw the electrode into the cutting torch to the end, slightly tighten them with force and then properly install the nozzle and protection cover in a proper order.

Important to set the correct air pressure before cutting. At low pressures the arc confident but the molten material of the cutting gap is therefore more difficult to leave the cut surface will not be smooth. At high air pressure in the ignition more difficult, but at the cutting surface is smoother.

Use the machine parameter table given pressure setting!

3. Operation Instruction

3-1 Front Panel



- 1 Digital Current Meter
- 2 Alarm Indicator
- 3 Phase-Lacking indicator
- 4 2T/4T Selection Button
- 5 Current Adjust Knob
- 6 Post-flow adjusting knob

- 7 Circuit Breaker
- 8 Cooler Fan
- 9 Gas/Air Inlet
- 10 Ground Connect
- 11 Power Input

- **2T/4T button:** "2T" is optimal setting in short cutting, pressing button will power up, when released, stop power supply. The first is the power button is pressed "4T" was and will remain so until the next time you press the button.
- **Given current :** The cutting power within the specified range of the parameter table, the corresponding value for the work must be adjusted. The current is adjustable and the display shows.
- **Gas/AIR after-flow time:** The torch head must be cooled down while also the work piece oxidize due to heat and must be cooled by air for approx. 10s depending the thickness. This button controls the after-flow time.

3-2. Working Parameters of Cutter

Air plasma cutting specs for low-carbon steel

Plate thickness (mm)	Conduction nozzle aperture (mm)	Cutting current (A)	Airflow (L/min)	Cutting speed (M/min)
6	Ø1	30	8	0,24
10	Ø1,2	40	70	0,3
20	Ø2	100	70	0,35
30	Ø2,5	125	70	0,3

Air plasma cutting specs for stainless steel

Plate thickness (mm)	Conduction nozzle aperture (mm)	Cutting current (A)	Airflow (L/min)	Cutting speed (M/min)
6	Ø1	30	8	0-2,5
10	Ø1,2	40	70	0-2,5
20	Ø2,5	100	70	0-2,0
30	Ø3	125	70	0-2,0

Air plasma cutting specs for aluminum and aluminum alloy

Plate thickness (mm)	Conduction nozzle aperture (mm)	Cutting current (A)	Airflow (L/min)	Cutting speed (M/min)
6	Ø1,2	40	10	0-30
10	Ø1,5	100	70	0-30
20	Ø2,5	125	70	0-25
30	Ø3,5	125	70	0-25

3-3. Cutting

- When preparing for cutting, hold the cutting gun (the cutting gun does not contact the work piece for a model of non-contact arc striking) and press the gun switch; at this time, plasma arc will eject from the nozzle hole, indicating the electrode, nozzle, etc. are installed correctly. If there is no plasma arc or only weak plasma arc ejected from the nozzle hole, it indicates the electrode and nozzle are installed improperly, so reinstallation is necessary after power-on.
- When cutting starts, the outer edge of the nozzle hole should be aligned to the edge of the work piece. Press the cutting torch switch to strike the arc; if the arc is not struck, release the switch and press it again. After successful arc striking, move the cutting torch at a constant speed to conduct normal cutting (the moving speed should vary from different plate thicknesses; if the sparks upturn, it indicates the moving speed is too fast and the work piece is not cut through, and the moving speed should be slower. If the sparks splash vertically to the work piece, it indicates the moving speed is too slow and the adhering slags may increase, and the speed should be improved properly).
- At the end of the cutting, when the work piece will be cut off, the cutting speed should be slowed down, release the cutting torch switch to complete the cutting.
- Splashes adhering to the nozzle surface will affect the cooling effect of the nozzle, so they should be removed in time, and dust and splashes on the cutting gun head should be removed regularly so as to maintain a good heat emission effect.
- The cutting torch rack ensures the distance from the nozzle to the plate. Never remove the cutting torch rack during cutting; otherwise the normal distance from the nozzle to the plate can not be guaranteed, thus causing the nozzle to touch the plate so as to lead to the gun burned.
- Replace the electrode and nozzle.

In case of the following cases, be sure to replace the electrode and nozzle in time.

- 1) above 1.5 mm electrode consumption depth;
- 2) irregularly deformed nozzle aperture;
- 3) obviously slower cutting speed and green flames occurring for arc
- 4) difficult arc striking;
- 5) Slanting kerf or widening kerf

Precautions

Workspace

1. Welding equipment free of dust, corrosive gas, non-flammable materials, up to 90% humidity for use!
2. Avoid welding outdoors unless protected from direct sunlight, rain, snow, work area temperature must be between -10 °C and +40°C.
3. Wall to position the device at least 30 inches away.
4. Well-ventilated area to perform welding.

Safety requirements

Welding provides protection against overvoltage / overcurrent / overheating. If any of the above events occurs, the machine stops automatically. However, over-stress damage to the machine, keep the following guidelines:

1. Ventilation . When welding a strong current going through the machine, so the machine is not enough natural ventilation for cooling . The need to ensure adequate cooling, so the distance between the plane and any object around it at least 30 cm . Good ventilation is important to normal function and service life of the machine.
2. Continuously, the welding current does not exceed the maximum allowable value. Current overload may shorten its life or damage to the machine .
3. Surge banned ! Observance of tension range follow the main parameter table . Welding machine automatically compensates for voltage, allowing the voltage within permissible limits of law. If input voltages exceed the specified value, damaged parts of the machine .
4. The machine must be grounded! If you are operating in a standard, grounded AC pipeline in the event of grounding is provided automatically . If you have a generator or foreign, unfamiliar, non-grounded power supply using the machine, the machine is required for grounding connection point earth to protect against electric shock .
5. Suddenly stopping may be during welding when an overload occurs or the machine overheats . In this case, do not restart the computer, do not try to work with it right away, but do not turn off the power switch, so you can leave in accordance with the built-in fan to cool the welding machines .

WARNING!

If the welding equipment is used with the welding parameters above 180 amperes, the standard 230V electrical socket and plug for 16 amp circuit breaker is not sufficient for the required current consumption, it is necessary to use the welding equipment with 20A, 25A or even to the 32A industrial fuses! In this case, both the plug and the plug socket fork have to be replaced to 32A single phase fuse socket in compliance with all applicable rules. This work may only be carried out by specialists!

Maintenance

1. Remove power unit before maintenance or repair!
2. Ensure that proper grounding!
3. Make sure that the internal gas and electricity connections are perfect and tighten, adjust if necessary, if there is oxidation, remove it with sandpaper and then reconnect the cable.
4. Hands, hair, loose clothing should be kept away under electric parts, such as wires, fan.
5. Regularly dust from the machine clean, dry compressed air, a lot of smoke and polluted air to clean the machine every day!
6. The gas pressure is correct not to damage components of the machine.
7. If water would be, for example. rain, dry it in the machine and check the insulation properly! Only if everything is all right, go after the welding!
- 8 When not in use for a long time, in the original packaging in a dry place.

CERTIFICATE OF EUROPEAN STANDARD

Manufacturer: IWELD Ltd.
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Item: **CUT 70 IGBT**
IGBT Inverter Technology
Plasma Cutting Power Sources

Applied Rules (1): EN 60204-1:2005
EN 60974-10:2014,
EN 60974-1:2013

(1) References to laws, rules and regulations are to be understood as related to laws, rules and regulations in force at present.

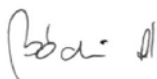
Manufacturer declares that the above specified product is complying with all of the above specified rules and it also complying with the essential requirements as specified by the Directives 2014/35/EU, 2014/30/EU, 2006/42/EU and 2011/65/EU

Serial No.:



Halásztelek (Hungary),

14/09/18


Managing Director:
András Bódi