JASIC®

CE RoHS

CUT80SC/CUT100SC

IGBT INVERTER CUTTER

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Congratulations on choosing JASIC equipment! This operating manual contains important information on the use and maintenance of this product, as well as safe handling of the product. Please refer to technical parameters of the equipment in Technical Parameter in this manual, and read the manual carefully before using the equipment for the first time. For your own safety and that of your working environment, please pay particular attention to the safety instructions in the manual and operate the equipment according to the instructions. For more information on JASIC products, please contact **J**ASIC Technology, consult an authorized JASIC dealer or visit JASIC website at www.jasictech.com.

Disclaimer

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For your safety, please read this manual carefully before installing and operating this JASIC equipment.

Pay extra attention to all content marked with "  **".**

All operations must be carried out by professional, suitably qualified persons!

1. Safety precautions

1.1 General safety

SAFETY INSTRUCTION

These general safety norms cover both arc welding machines and plasma cutting machines unless otherwise noted.

It is important that users of this equipment protect yourselves and others from harm or even death.

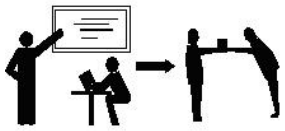
The equipment must only be used for the purpose it was designed for. Using it in any other way could result in damage or injury and in breach of the safety rules.

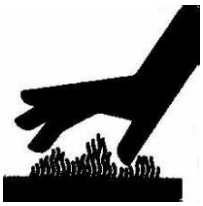
Only suitably trained and competent persons should use the equipment.

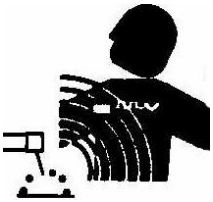
Pacemaker wearers should consult your doctor prior to using this equipment

PPE and workplace safety equipment must be compatible for the application of work involved.

Always carry out a risk assessment before carrying out any welding or cutting activity

	**Only qualified personnel should operate this machine!** ·Always use the appropriate personal protective equipment. ·Always pay attention to the safety of other persons around the working zone ·Do not carry out any maintenance with the power on the machine
	**Electric shock——May cause serious injury or even death!** ·The equipment should be installed by a qualified person and in accordance with current standards in operation. It is the user's responsibility to ensure that the equipment is connected to a suitable power supply. Consult with your utility supplier if required. Do not use the equipment with the covers removed. ·Do not touch live electrical parts or parts, which are electrically charged. ·Turn off all equipment when not in use.
	**Fumes and gases——May be hazardous to your health.** Locate the equipment in a well-ventilated position and keep your head out of the fume. Do not breathe the fume. Ensure the working zone is well ventilated and provision should be made for suitable local fume extraction system to be in place. If ventilation is poor, wear an approved air fed welding helmet or respirator. Read and understand the Material Safety Data Sheets (MSDS's) and the manufacturer's instructions for metals, consumable, coatings, cleaners and de-greasers. Do not work in locations near any de-greasing, cleaning or spraying operations. Be aware that heat and rays of the arc can react with vapours to form highly toxic and irritating gases.

	**Arc rays——May injure the eyes and burn the skin.** The arc rays from all processes produce intense, visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. ·Wear an approved welding helmet fitted with an appropriate shade of filter lens to protect your face and eyes when working or watching. ·Wear approved safety glasses with side shields under your helmet. ·Never use broken or faulty welding helmets. ·Always ensure there are adequate protective screens or barriers to protect others from flash, glare and sparks from the working area. ·Ensure that there are adequate warnings that welding or cutting is taking place. ·Wear suitable protective flame resistant clothing, gloves and footwear.
	**Precautions against fire and explosion** Avoid causing fires due to sparks and hot waste or molten metal. Ensure that appropriate fire safety devices are available near the welding and cutting area. Remove all flammable and combustible materials from the welding, cutting and surrounding areas. Do not weld or cut fuel and lubricant containers, even if empty. These must be carefully cleaned before they can be welded or cut. Always allow the welded or cut material to cool before touching it or placing it in contact with combustible or flammable material. Do not work in atmospheres with high concentrations of combustible fumes, flammable gases and dust. Always check the work area half an hour after cutting to make sure that no fires have begun. Take care to avoid accidental contact of electrode to metal objects. This could cause arcs, explosion, overheating or fire.
	**Risks due to hot material** · The process will create hot metal, sparks and drips of molten metal, so it's very important to ensure the operator is equipped with full PPE and to always ensure there are adequate protective screens or barriers to protect others from flash, glare and sparks from the working area. Hot surfaces will create fires and will burn any exposed skin. Always protect your eyes and body. Use the correct welding screen and filter lens and wear full PPE protective clothing. Do not touch any hot surfaces or parts bare handed. Always allow hot surfaces and parts to cool down first before touching or moving. If you are required to move hot parts, ensure you use proper tools and insulated welding gloves (PPE) to prevent burns to your hands and arms.

	**Noise——Excessive noise may be harmful to hearing** ·Protect your ears by ear shields or other hearing protectors. ·Give warning to nearby personnel that noise may be potentially hazardous to hearing.
	**Risks due to magnetic fields** The magnetic fields created by high currents may affect the operation of pacemakers or electronically controlled medical equipment. Wearers of vital electronic equipment should consult their physician before beginning any arc welding, cutting, gouging or spot welding operations. Do not go near welding equipment with any sensitive electronic equipment as the magnetic fields may cause damage. Keep the torch cable and work return cable as close to each other as possible throughout their length, this can help minimize your exposure to harmful magnetic fields. Do not wrap the cables around the body.
	**Protection from moving parts** When the machine is in operation keep away from moving parts such as motors and fans. Moving parts, such as the fan, may cut fingers and hands and snag garments. Protections and coverings may be removed for maintenance and controls only by qualified personnel after first disconnecting the power supply cable. Replace the coverings and protections and close all doors when the intervention is finished and before starting the equipment. Take care to avoid getting fingers trapped when loading and feeding wire during set up and operation. When feeding wire be careful to avoid pointing it at other people or towards your body. Always ensure machine covers and protective devices are in operation.
	**Troubleshooting** Before the machines are dispatched from the factory, they have already been checked thoroughly. The machine should not be tampered with or altered. Maintenance must be carried out carefully. If any wire becomes loose or is misplaced, it maybe potentially dangerous to user! Only professional maintenance personnel should repair the machine! Ensure the power is disconnected before working on the machine. Always wait 5 minutes after power switch off before removing the panels. If you still do not fully understand or cannot solve the problem after reading the instructions in this manual, you should contact the supplier or JASIC's service center immediately for professional help.

1.2 Other precautions

Warning! Location

The machine should be located in a suitable position and environment. Care should be taken to avoid moisture, dust, steam, oil or corrosive gases. Place on a secure level surface and ensure that there is adequate clearance around the machine to ensure natural airflow.

Warning! The handle or strap on the machine is only suitable for manual lifting of the machine. If mechanical equipment such as crane is used to lift the machine, please ensure the machine is secured with suitable lifting equipment.

Warning!

Input connection

Before connecting the machine, you should ensure that the correct supply is available. Details of the machine requirements can be found on the data plate of the machine or in the technical parameters shown in the manual. The equipment should be connected by a suitably qualified competent person.

Always ensure the equipment has a proper grounding.

Never connect the machine to the mains supply with the panels removed.

1) When the operator's movement is limited by the surroundings (for example, the operator can only bend his knees, barefoot, or lie down during operation), the operator shall practice proper insulation and avoid direct contact with conductive parts on the equipment.
2) Do not use the machine in closed containers in narrow spaces where conductive components cannot be removed.
3) Do not use the machine in humid environments where the operator is prone to the risk of electric shock.
4) Do not use the machine in sunlight or rain, and no water or rainwater shall seep into the machine.
5) Do not perform gas shielded welding in an environment with strong air flow.
6) Avoid welding or cutting in dusty area or environment with corrosive chemical gas.
7) The ambient temperature must be between-10°C and 40°C during operation and between-25°C and 50°C during storage.
8) Welding or cutting shall be carried out in a relatively dry environment, and the air humidity shall not exceed 90%.
9) The inclination of the machine shall not exceed 10°.
10) Ensure that the input power supply voltage does not exceed 15% of the rated voltage of the machine.
11) Beware of falling when welding or cutting at heights.

2. Symbol descriptions

 Warning! Read the User Manual

 High-voltage warning

 WEEE label

A Current unit "Ampere"

 Over-heat protection indication

 Over-current protection indication

 Continuous cutting mode

 Perforated cutting mode

 MMA mode

 Mode switch button

Internal gas pump

Air supply to the outside

External air source

 Continuous cutting 2T

 Continuous cutting 4T

 Function selection button

 Air indication symbols

 Air check button

3. Product overview

This product is a high-performance, technologically advanced, digital inverter air plasma arc cutter. This plasma arc cutter is capable of generating a stable DC arc for cutting various materials, such as carbon steel, low-alloy steel, and stainless steel. The cutter is adjustable in its cutting torch length and air delivery time, durable, and widely applied.

The unique electrical structure and air duct design inside the machine can accelerate the dissipation of heat generated by power devices, thus improving the machine's Duty cycle. Its unique air duct design can effectively prevent damage to the power devices and control circuit due to dust being sucked into the machine, thus greatly improving the reliability of the machine.

The cutter has the following main functions:

◆ Continuous cutting, perforated cutting, and manual welding, making it suitable for various applications.

◆ 2T and 4T cutting modes, reducing the operator's workload.

◆ Optional internal air pump, external air source, and air supply to the outside to meet the use needs of different users.

◆ Stepless current adjustment, making the current selection more accurate.

◆ Controllable intelligent fan and intelligent air pump, making the cutter energy-saving and noise-reducing.

◆ Single-chip microcomputer digital control technology, achieving high control accuracy and excellent welding and cutting performance.

◆ Parameter resetting function.

◆ Optional CNC interface, making the cutter easier to match the numerical control machine tool.

4. Technical parameters of the product

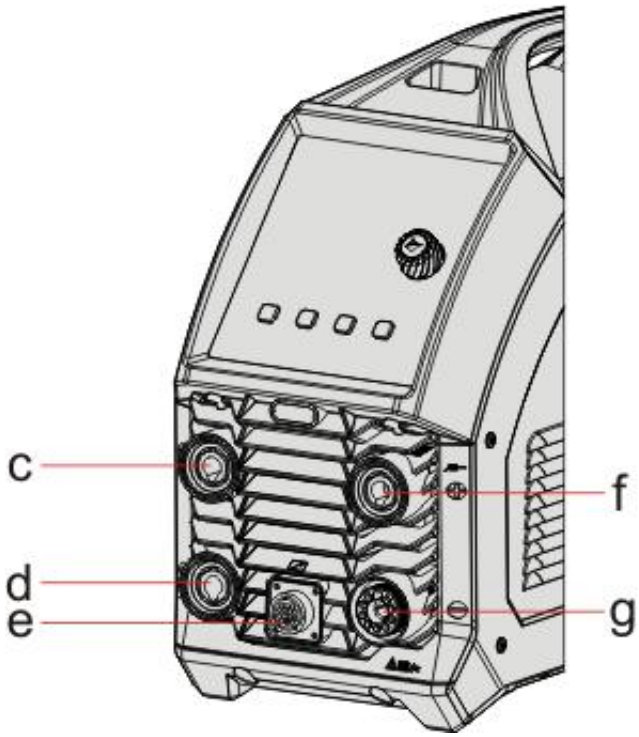
Descriptions		Unit	Parameters	
Model		/	CUT80 SC	CUT100 SC
Power supply voltage		VAC	AC400V±15%	AC400V±15%
Input frequency		Hz	50	50
CUT	Rated input current	A	19	25
	Power supply capacity	KVA	12.5	16.5
	Current adjustment range	A	20 ~ 80	20 ~ 100
	No-load voltage	V	325	325
	Rated working voltage	V	112	120
	Duty cycle	%	40	40
	Good cutting thickness	mm	Steel 20mm @400mm/min	Steel 25mm @400mm/min
	Severance cutting thickness	mm	Steel 35mm	Steel 40mm
MMA	Rated input current	A	18	18
	Power supply capacity	KVA	12	12
	Current adjustment range	A	50 ~ 280	50 ~ 280
	No-load voltage	V	77	77
	Rated working voltage	V	31.2	31.2
	Duty cycle	%	25	30
Power factor			≥0.9	≥0.9
Efficiency (at maximum input current)		%	≥85	≥85
Idle power consumption		W	11	11
Insulation grade			H	H
Enclosure class			IP23S	IP23S

Static external characteristics		CC	CC
Pollution degree		Degree 3	Degree 3
Length×Width×Height (machine)	mm	626×230×416	626×230×416
Length×Width×Height (package)	mm	810×320×495	810×320×495
Machine weight	Kg	22	23
Package weight	Kg	29	30

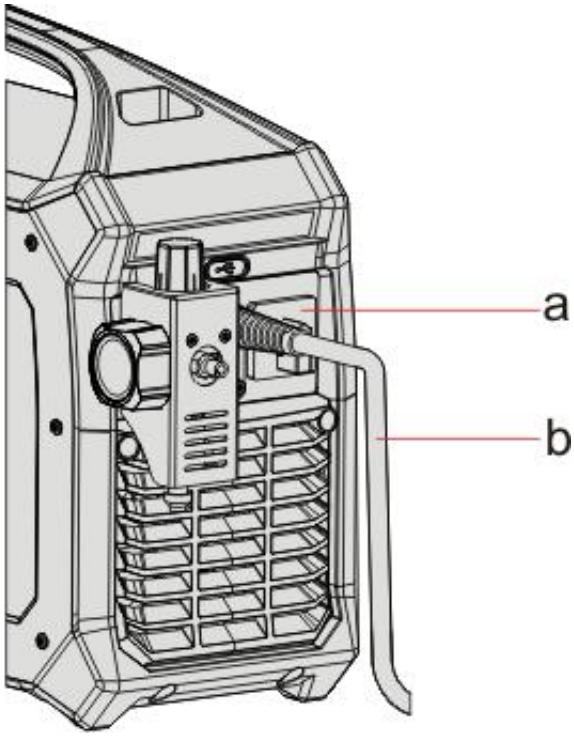
5. Installation

Warning! All connections should be made after the power supply is disconnected.
Warning! Electric shock may result in death. After the power-off, the equipment still has high voltage, so do not touch any live part of the equipment.
Warning! Improper voltage may damage the equipment.
Warning! The product meets the electromagnetic compatibility requirements for Class A equipment. The product cannot be used by directly connecting it to the low-voltage power supply grid for residence communities.

5.1. Instructions to external interfaces



(Front panel view)



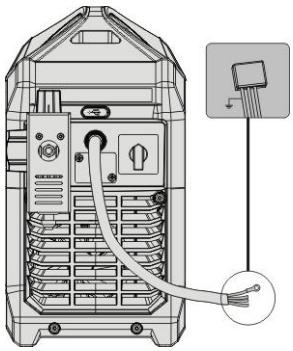
(Rear panel view)

a. Power switch
b. Input power cable
c. Quick socket (MMA output positive pole)
d. Quick socket (MMA output negative pole)
e. CNC aviation socket (optional)
f. Quick socket (CUT output positive pole)
g. Central plasma socket

5.2. Installation of the power supply

Warning! The equipment must be electrically connected by a qualified electrician.
Warning! All connections should be made after the power supply is disconnected.
Warning! Improper voltage may damage the equipment.

1) A multimeter is used to measure and confirm whether the input voltage value is within the fluctuation range.
2) Ensure that the power switch of the cutter is off.
3) Connect the input power cable to the input terminal or insert the connector plug of the power cable into the corresponding socket (if any), ensuring good contact.
4) Connect the ground cable of the power supply to the ground properly. (The European plug shown in the figure comes with a grounding terminal, without additional grounding)



(Wiring diagram)

Attention! When extending the input cable is required, use a cable with a bigger cross-sectional area to reduce the voltage. The recommended cable cross-section is 4X4mm2 or above.

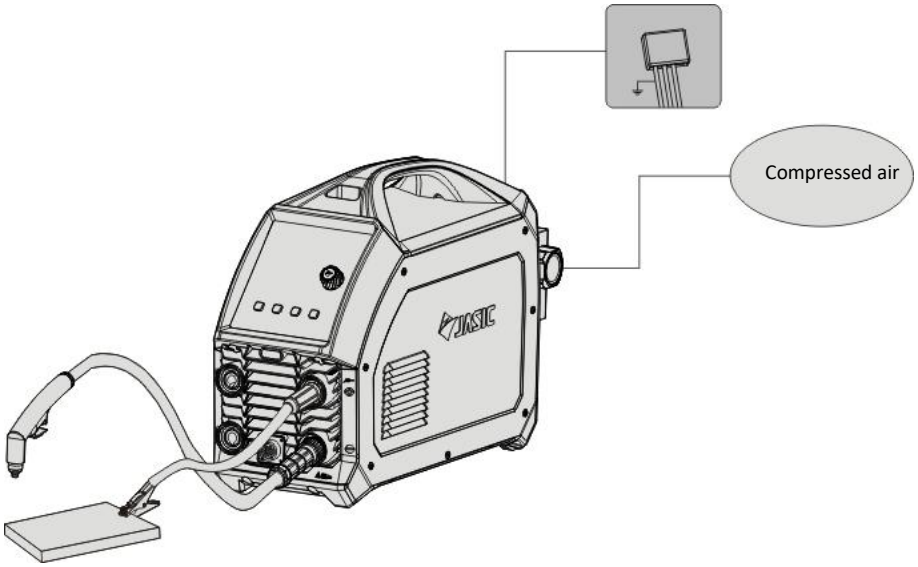
5.3. Connection of the cutting torch, earth cable, and air pipe

1) Ensure that the power switch is off.

2) Insert the connector plug of the cable with a grounding clamp into the positive quick socket at the right upper part of the front power panel and then tighten it firmly clockwise.

3) Insert the central plasma connector plug of the cutting torch into the positive central plasma socket at the right lower part of the front power panel and then tighten it firmly clockwise.

4) Connect the input terminal of the air regulator on the rear panel to the output interface of the compressed air source and fix it securely with a clamp.

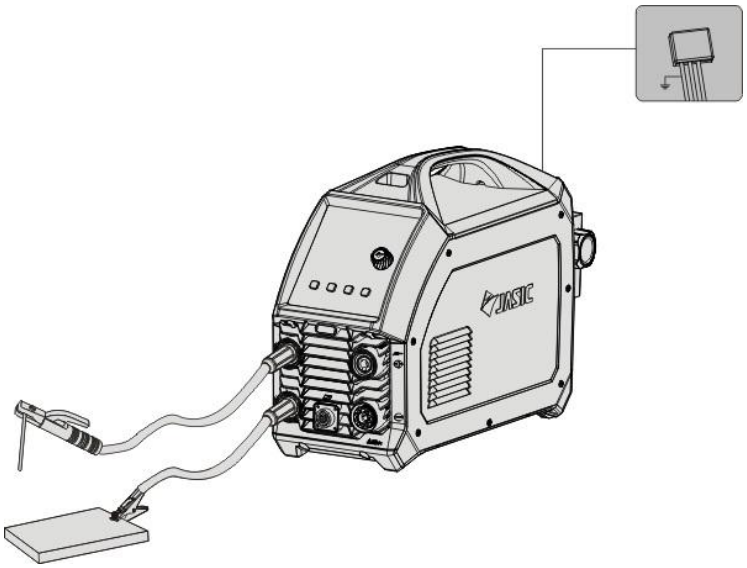


5.4. Connection of the electrode holder and earth cable

1) Ensure that the power switch is off.

2) Insert the connector plug of the cable with an electrode holder clamp into the positive quick socket at the left upper part of the front power panel and then tighten it firmly clockwise.

3) Insert the connector plug of the cable with a grounding clamp into the negative quick socket at the left lower part of the front power panel and then tighten it firmly clockwise.



(Wiring diagram)

Attention! If the workpiece is far away from the cutter, and the two earth cables are long, the recommended cross-sectional area of the cables used should be appropriately larger to reduce the cable voltage drop.

6. Control panel

6.1. Overview

a. Parameter and error code indication
b. Protection indication
c. Selection of welding and cutting modes
d. Selection of air supply mode
e. Parameter unit indication
f. Parameter adjustment knob
g. Air check button and indication
h. Selection of cutting modes

6.2. Parameter and error code indication

1) This area indicates the current setting.
2) This area indicates the countdown when the cutter is reset to the factory setting.
3) This area indicates the parameter setting when the engineer mode is adjusted at the secondary menu.
4) This area indicates the corresponding barcode when the barcode is queried.
5) This area indicates the error code when the product is abnormal.

6.3. Selecting welding or cutting modes

1) When no welding and cutting is performed, the operator can switch between the continuous cutting, perforated cutting, and MMA modes by pressing the mode selection button  . The user can choose the mode as required.
2) The power supply is in the continuous cutting mode when the indicator  is on.
3) The cutter is in the perforated cutting mode when the indicator  is on.
4) The power supply is in the MMA mode when the indicator  is on.

6.4. Selecting the air supply mode

5) When the user selects the continuous or perforated cutting mode, the user can switch between the three air supply modes (e.g., internal air, supply air, and external air) by pressing the air supply mode selection button  . The user can select the air supply mode as required.
6) The cutter is in the internal air mode when the indicator  is on. Thus, the air is supplied by the internal air compressor assembly during cutting.
7) The cutter is in the external air mode when the indicator  is on. The internal air compressor works continuously to supply air, and the machine cannot be used for cutting and welding.
8) The cutter is in external air mode when the indicator  is on. Thus, the air is supplied by the external air source during cutting.

6.5. Parameter adjustment knob

1) The user can adjust the current parameter by turning the parameter adjustment knob.
2) By turning the parameter adjustment knob clockwise, the parameter value increases; by

turning the parameter adjustment knob counterclockwise, the parameter value decreases.

3) When the adjustment knob is turned, the adjusted parameter is indicated in the parameter indication area at simultaneously.

6.6. Air check function

1) When the user selects the continuous cutting or perforated cutting mode, and the cutter is in the non-cutting state, press the air check button  .

2) The indicator light  is on, indicating that it is in the air check mode;

3) After you press the air check button again or wait for 20 s, the indicator comes off, and the cutter exits the air check mode.

6.7. Current setting

1) In the continuous cutting or perforated cutting mode, the display window indicates the cutting current. You can set the cutting current by turning the adjustment knob.

2) In the MMA mode, the display window displays the welding current or arc-force current. You can switch between the welding current and arc-force current. You can set the welding current or arc-force current by turning the adjustment knob  .

6.8. Protection indication

The power supply is over-heat protected when the over-heat indicator  comes on.

The power supply is over-heat protected when the over-heat indicator  comes on.

6.9. VRD function indication

1) The VRD function is activated only in the MMA mode.

2) The VRD activation/deactivation can be controlled via the dip switch SW1 on the control board. When the control board SW1 is "ON", the VRD function is activated; when the control board SW1 is "OFF", the VRD function is deactivated.

3) When the VRD function is activated, the VRD voltage is lower than DC15V; when the

VRD indicator comes green 

, it indicates that the VRD function is normal.

4) When the VRD function is activated, the VRD voltage is lower than DC15V; when the VRD indicator comes red 

, it indicates that the VRD function is abnormal.

5) When the VRD function is activated during welding, the VRD indicator is not on.

6.10. Adjusting the post-flow time

1) When the cutter is not working in the cutting mode, press the parameter adjustment knob  to enter the post-flow time adjustment mode.

2) The post-flow time can be adjusted within the range of 5-60s, with an accuracy of 1s.

6.11. View in engineer mode

1) When the cutter is not cutting or welding something, press and hold the parameter adjustment knob for  5 s to enter the engineer mode.

2) With the button pressed and held for 1 s, the display window counts down from 3. After the countdown ends, the cutter enters the engineer mode. If you release the button midway to exit the countdown, the cutter does not enter the engineer mode.

3) Engineer mode: F01 means the standby duration measured in min, including 0, 5, 10, and 15, of which 0 means no activation of standby function.

F02 means the cutting torch length measured in m, including 0, 5, 10, 15, and 20, of which 0 means the adaptive torch length.

4) Following the completion of the parameter adjustment, press the mode selection button  to save and exit.

6.12. Factory reset

1) When the cutter is not cutting or welding something, press and hold the mode selection button for  5 s to do factory reset.

2) With the button pressed and held for 1s, the display window counts down from 3. After the countdown ends, the cutter is reset to the factory setting. If you release the button midway to exit the countdown, the cutter cannot be reset to the factory setting.

3) Resetting to the factory settings: Continuous cutting, internal air, 2T, cutting current: maximum current and post-flow time: 15s.

6.13. Barcode display

1) When the cutter is not cutting or welding something, press and hold the mode selection button and parameter adjustment knob for 5 s to enter the barcode display mode.
2) The display window indicates the machine barcode. Then, press any button to cancel the indication.

7. Welding and cutting operations

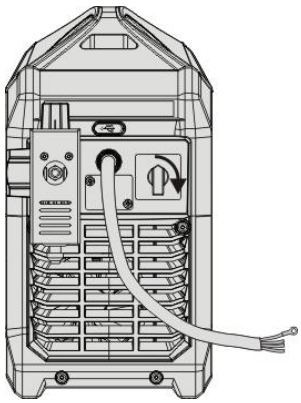
Warning! Before power-on, make sure that the cutting torch switch is disconnected. Otherwise, an unexpected arc may occur when the cutter is powered on, resulting in possible damage to the workpiece and personal injury.

Warning! During welding and cutting, the user must wear appropriate protection equipment. Electric arc, splashes, fumes, and high temperature produced during welding and cutting may result in personal injury.

Warning! With the cutter powered off, the voltage of the power supply output terminal may drop slowly after a while. Before the panel indicator is off, do not contact the live part of the output terminal.

7.1. Cutting operations

7.1.1 Turn on the power switch.



The power switch is on the rear panel of the machine. After it is turned to the "ON" position, the panel indicator comes on. Then, the fan in the machine starts rotating, and the power supply also starts working normally.

Attention! This model has an intelligent fan function, so the fan can stop working automatically if no cutting is being done within a period after the cutter is powered on, and then work again when the cutting resumes.

7.1.2 Press the function selection button to select an appropriate mode as required, i.e., continuous cutting or perforated cutting.
7.1.3 Press the air supply mode selection button to select an air supply mode as required, i.e., internal air pump or external air source.
7.1.4 Press the operation mode selection button to select an operation mode as required, i.e., 2T or 4T.
7.1.5 Select an appropriate cutting current in terms of the thickness of the plate to be cut. By turning the coder, adjust the cutting current parameter.

Cutting speed (m/min) at the cutting current of 80A

Cutting	0.1	5	10	15	20	25	30	35	40
Low-carbon steel		3.3	1.1	0.65	0.5	0.3		0.1	
Galvanized steel		3.3	1.1	0.65	0.5	0.3		0.1	
Stainless steel		2.9	0. 95	0.65	0.5	0.3		0.1	
Aluminum		2	0.6	0.38	0.25	0.15			
Brass		0.7	0.1						
Red copper		0.7	0.1						

Cutting speed (m/min) at cutting current of 100A

Cutting thickness (mm)	0.1	5	10	15	20	25	30	35	40
Low-carbon steel		4.0	1.4	0.8	0.65	0.4			0.1
Galvanized steel		4.0	1.1	0.8	0.65	0.4			0.1
Stainless steel		3.5	1.2	0.75	0.6	0.35			0.1
Aluminum		2.5	0.8	0.5	0.35	0.25	0.15		
Brass		0.8	0.15						
Red copper		0.8	0.15						

Cutting speed (m/min) at the cutting current of 120A

Cutting thickness (mm)	5	10	15	20	25	30	35	40	45
Low-carbon steel	4.5	1.7	1	0.8	0.55	0.4			0.1
Galvanized steel	4.5	1.7	1	0.8	0.55	0.4			0.1
Stainless steel	4	1.5	0.9	0.7	0.4	0.3		0.1	
Aluminum	3	1.2	0.8	0.6	0.3	0.1			
Brass	1	0.3	0.1						
Red copper	1	0.3	0.1						

Attention! A cutting mode that meets requirements should be selected. During cutting, select appropriate cutting parameters as the case may be. Failure to select appropriate cutting parameters may result in arc instability, insufficient workpiece cutting, excessive cutting slags, uneven cutting surface, and excessive consumption of quick-wear parts.

7.1.6 Start cutting

Continuous cutting 2T: The cutter will stop output automatically after the main arc extinguishes due to a lack of base metal during the cutting. The cutting torch switch must be released and then pressed again to re-establish the pilot arc and carry out the cutting operation.

Continuous cutting 4T: The cutter will switch to the pilot arc output automatically after the main arc extinguishes due to a lack of base metal during the cutting. The user can re-establish the pilot arc and carry out the cutting operation without releasing the cutting torch switch.

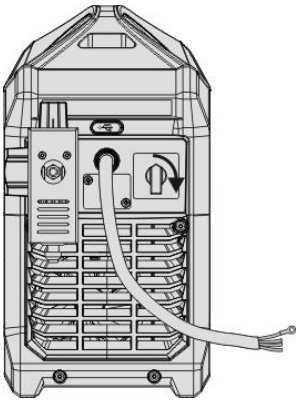
Perforated cutting: When the cutter will re-establish the pilot arc and remain for a period automatically after the main arc extinguishes due to a lack of base metal during the cutting. The cutting can be continued when the pilot arc touches the workpiece and the main arc. In the perforated cutting mode, the cutter automatically switches to the 2T mode from the 2T/4T mode.

7.1.7 Turning off the power supply after cutting

The power switch is on the rear panel of the machine. With the power switch turned to the "OFF" position, the panel indicator comes off after a while. Then, the power supply stops working.

7.2. Welding operation

7.2.1 Turn on the power switch.



The power switch is on the rear panel of the machine. After it is turned to the "ON" position, the panel indicator comes on. Then, the fan in the machine starts rotating, and the power supply also starts working normally.

Attention! This model has an intelligent fan function, so the fan can stop working automatically if no welding is being done within a period after the cutter is powered on, and then work again when the cutting resumes.

7.2.2 Press the function selection button to select the MMA mode as required (In this case, the air supply mode and operation mode buttons do not work)

7.2.3 Press the coder button to adjust the arc-force current within the range of 0-60A.

7.2.4 Select an appropriate welding current in terms of the thickness of the welding electrode. By turning the encoder, adjust the welding current parameter.

Plate thickness (mm)	Welding electrode diameter (mm)	Welding current (A)
2~4	2.0	40~65
	2.5	50~80
	3.2	100~130
4~12	3.2	100~130
	4.0	160~210
> 12	5.0	200~270
	6.0	220~300

7.2.5 Start welding

7.2.6 Turning off the power supply after welding

The power switch is on the rear panel of the machine. With the power switch turned to the "OFF" position, the panel indicator comes off after a while. Then, the power supply stops working.

8. Maintenance and care

Warning! The following operations must be performed by the operator with professional knowledge of electricity and safety. The operator should have valid qualification certificates that prove his/her capability and knowledge background.

Warning! Before opening the housing, confirm that the cutter's input cable has been disconnected from the power grid.

8.1 Power supply maintenance

1) Regularly check the internal circuit connection of the cutter to confirm that the circuit connection is correct, and the connector is firm (especially for inserted connectors or components). If rust or looseness is found, sandpaper should be used to remove the rust layer or oxide film, then reconnect and tighten it.
2) Do not put hands, hair, tools, etc. near the live devices in the machine during maintenance, such as fans, to avoid personal injury or damage to the machine.

3) Dry and clean compressed air should be used to blow off the dust regularly. If the cutter that is used in an environment with heavy smoke and severe air pollution should be dedusted daily. The compressed air pressure should remain at a reasonable level to avoid damage to the small components in the welder.

4) Avoid water or steam entering the interior of the cutter. In case of water ingress into the machine, the interior of the cutter should be dried. Then, the insulation of the cutter (including between the connection nodes and between the connection point and the enclosure) shall be measured with a megohmmeter. Do not proceed with welding unless confirming that there is no abnormal condition.
5) Regularly inspect all cable insulation layers of the cutter for damage, wrap them up or replace as necessary.
6) If the cutter is not used for a long time, it should be put back into the original packaging box and stored in a dry environment.
7) Regularly checking the power switch, grounding device, cutting torch, and coupling output device is required. If rusted, loosened, or connected improperly, remove the rust, or tighten the loosened and improperly connected parts.

9. Faults and repair

Warning! The following operations must be performed by the operator with professional knowledge of electricity and safety. The operator should have valid qualification certificates that prove his/her capability and knowledge background. Before opening the housing, confirm that the cutter's input cable has been disconnected from the power grid.

Warning! After some models are disconnected from the input power supply, the capacitor in the machine may have a high voltage within a period. Please discharge before testing.

9.1. Troubleshooting common problem

Warning: The cutter may be damaged during use. After you confirm that the cutter is damaged, the cutter should be repaired promptly. The cutter can be repaired only by the personnel who have received professional training. Do not have the cutter repaired by non-professional personnel; otherwise, the fault scope may be further extended, or more valuable parts are damaged.

The faults listed below may be related to the accessories, gas, environmental factors and power supply you use. Please try to improve the environment to avoid these faults.

Fault symptoms	Possible causes	Solutions
No pilot arc is produced after the cutting torch switch is pressed.	· The cutter is in the air check mode. · The cutting torch switch circuit does not work. · The compressed air pipe is not connected. · The pilot arc circuit is damaged.	· Deactivate the air check function or wait for 20s until air check function is deactivated automatically. · Check the cutting torch switch circuit. · Connect the compressed air pipe again. · Replace or repair the main board.
The pilot arc is not continuous, or the pilot arc extinguishes.	· The consumables are consumed heavily. · The input compressed air pressure is too high. · The input compressed air contains too much moisture and foreign bodies. · The time of pilot arc exceeds 2 seconds.	· Replace the used consumables with new ones. · Adjust the compressed air pressure to 0.35-0.55 MPa through the air regulator on the rear panel. · Remove the water in the air regulator on the rear panel manually or replace the air regulator.

		· Do not press the trigger of the cutting torch for a long time.
The pilot arc cannot be transferred to the workpiece.	· The cutting circuit does not work. · The distance between the cutting torch tip and the workpiece is too large.	· Check whether the earth clamp are damaged, and clean the contact area between the earth clamp and the workpiece to ensure the metal-to-metal contact is good. · Ensure that the distance between the cutting torch tip and the workpiece is maintained within 3-5 mm.
Poor cutting quality	· Mismatch between cutting current, cutting speed, and workpiece thickness. · The cutting air pressure is too low or high. · The consumables are consumed heavily.	· Select the correct cutting procedures for operation. For details, refer to 7.1.3, "Cutting Process Quick Reference Table". · Ensure that the working air pressure is 0.35-0.55 MPa. · Replace the used consumables with new ones.

9.2. Alarms and handling methods

Error codes	Category	Possible causes	Countermeasures
E10	Over-current protection	The cutter continuously outputs the maximum current.	If the overcurrent protection is still triggered after the cutter is started, contact the manufacturer's after-sales service.
E31	Under-voltage protection	The input grid voltage is too low.	Shut down the cutter and then start it again. If the phenomenon still exists, it indicates that the grid voltage is too low continuously. Ask your electrician to check the grid voltage. Then, perform the cutting after the grid voltage resumes normal. If the grid voltage is normal and the under-voltage alarm is still triggered repeatedly, you can contact our professional service personnel.
E32	Overvoltage protection	The input grid voltage is too high.	Shut down the cutter and then start it again. If the phenomenon still exists, it indicates that the grid voltage is too high continuously. Ask your electrician to check the grid voltage. Then, perform the cutting after the grid voltage resumes normal. If the grid voltage is normal and the under-voltage alarm is still triggered repeatedly, you can contact

			our professional service personnel.
E60	Over-heat	The temperature of the inverter IGBT is too high.	Do not shut down the cutter but wait for a while. So, after the over-heat indicator comes off, the cutting can resume.
E62	Over-heat	The output rectifier diode of the MMA is over-temperatu re.	Do not shut down the cutter but wait for a while. So, after the over-heat indicator comes off, the cutting can resume.

Attention! If failed to handle the alarms or the alarm still occurs after the above countermeasures are attempted, please contact our professional service person for handling the alarm.

10. Packaging, transportation, storage and waste disposal

10.1. Transportation requirements

In the process of handling the equipment, it should be handled with care, and should not be dropped or severely impacted. Avoid moisture and rain during transportation.

10.2. Storage conditions

Storage temperature:-25 ℃ ~ + 50 ℃
Storage humidity: relative humidity ≤ 90%
Storage period: 12 months
Storage site: indoors with no corrosive gas and air circulation

10.3. Waste disposal

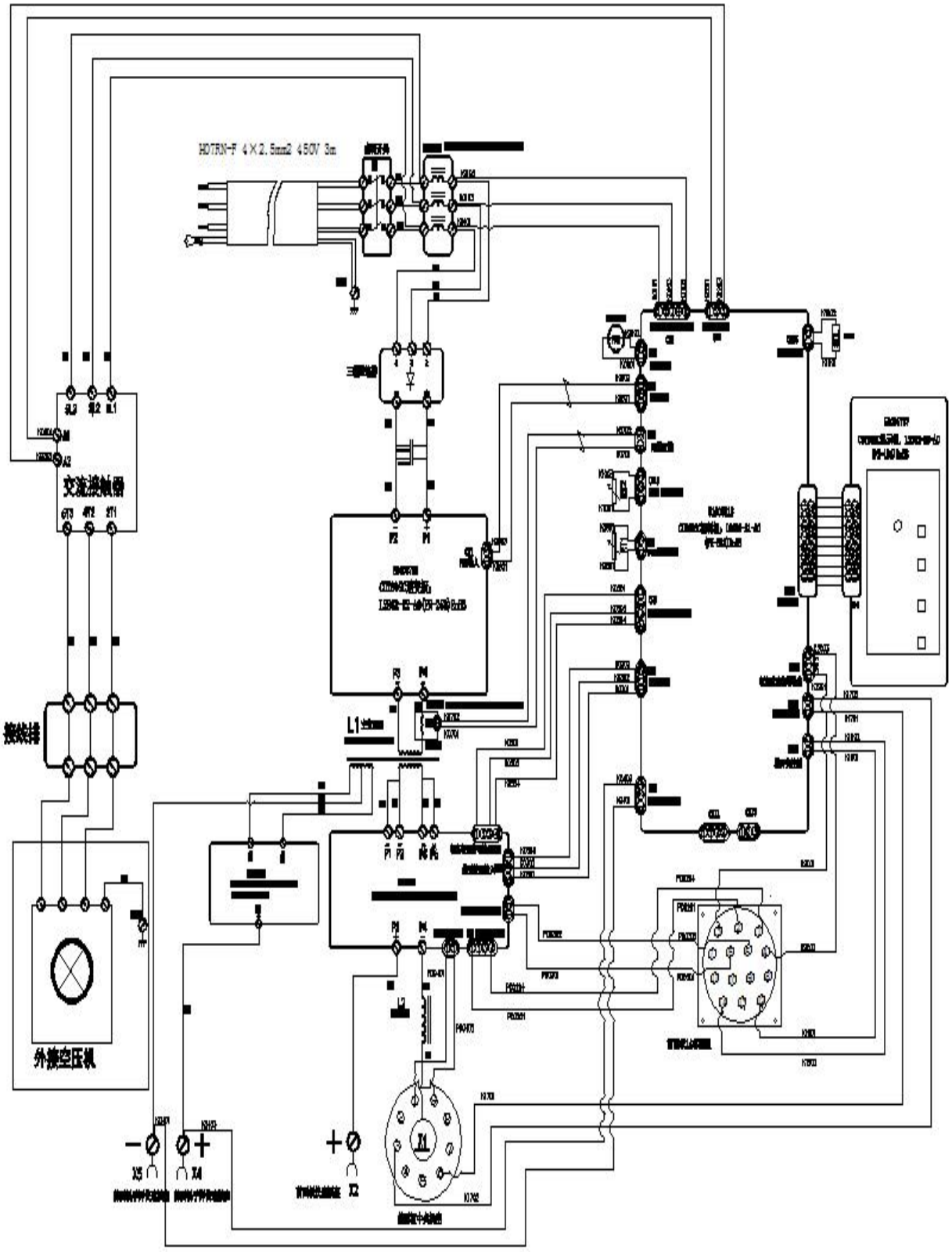
Disposal

The equipment is manufactured with materials, which do not contain any toxic or poisonous materials dangerous to the operator.
When the equipment is scrapped, it should be dismantled separating components according to the type of materials.
Do not dispose of the equipment with normal waste. The European Directive 2002/96/EC on Waste Electrical and Electronic Equipment states the electrical equipment that has reached its end of life must be collected separately and returned to an environmentally compatible recycling facility.
In order to comply with WEEE regulations in your country you should contact your supplier.

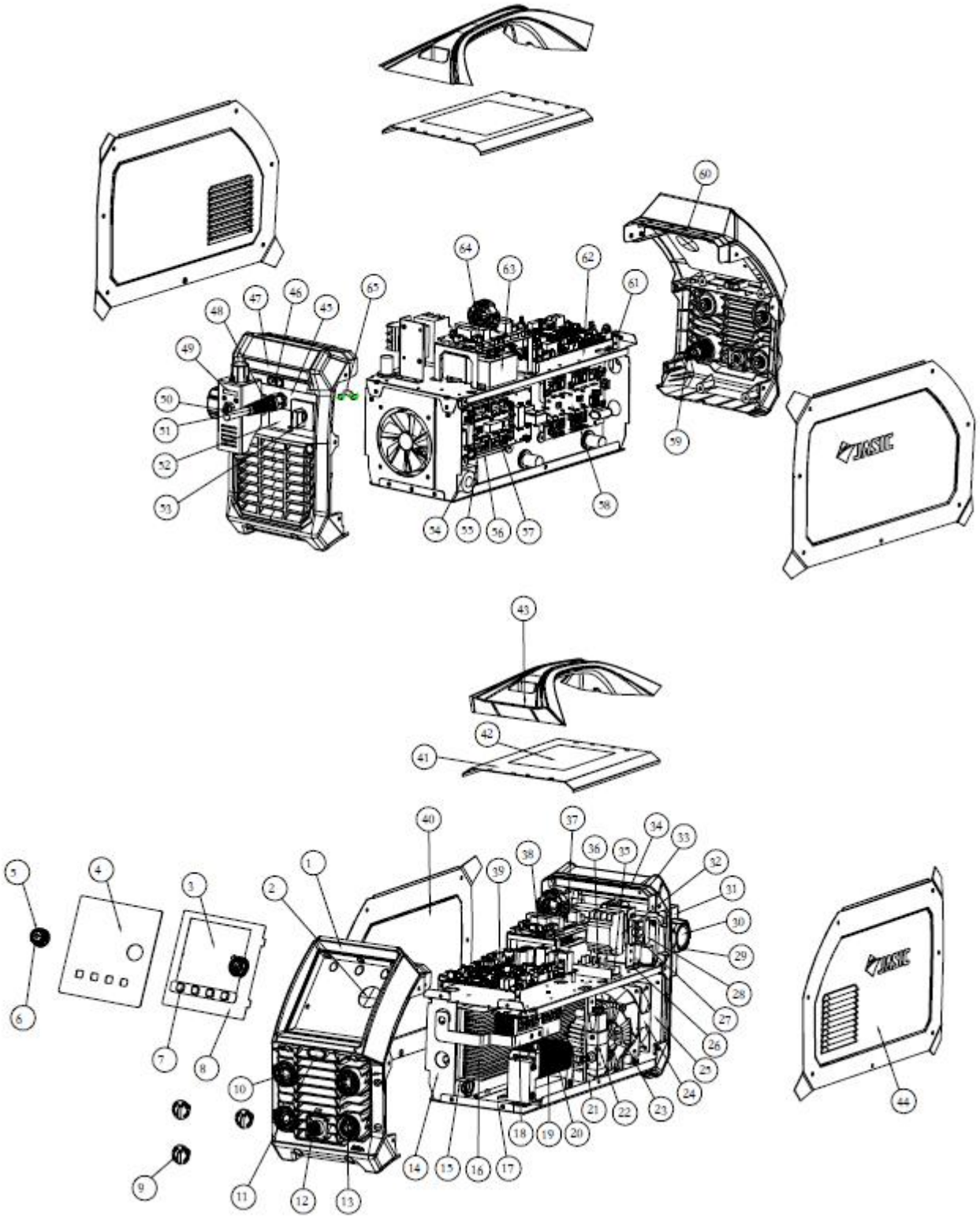
RoHS Compliance Declaration

We herewith confirm, that the above-mentioned product does not contain any of the restricted substances as listed in EU Directive 2011/65/EC in concentrations above the limits as specified therein.
Disclaimer: Please note that this confirmation is given to the best of our present knowledge and belief. Nothing herein represents and/or may be interpreted as warranty within the meaning of the applicable warranty law.

Annex 1: CUT80 SC Equipment wiring Diagram



Annex 2: CUT80 SC Exploded-view Drawings

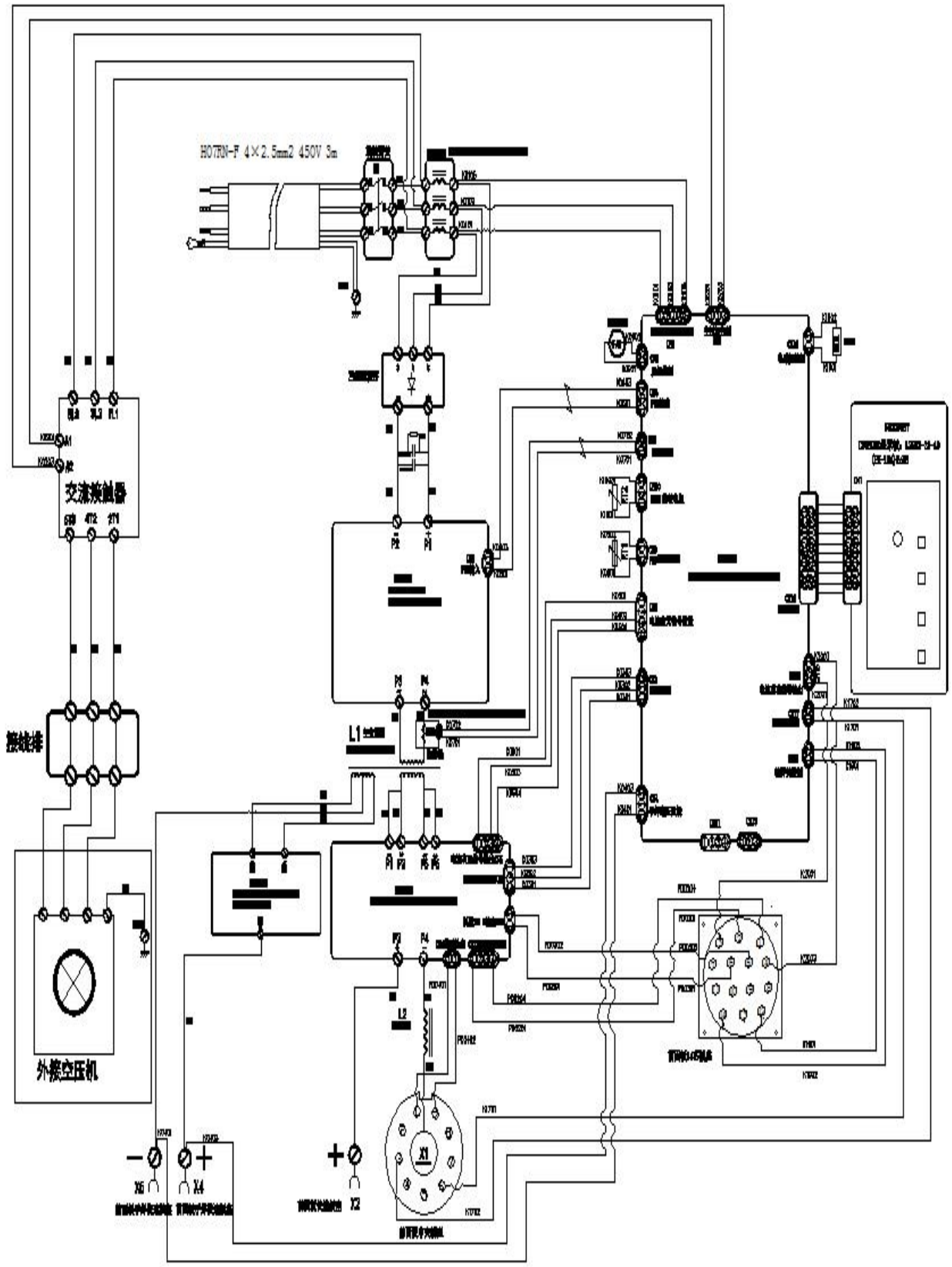


Annex 3: CUT80 SC Common Spare Parts List

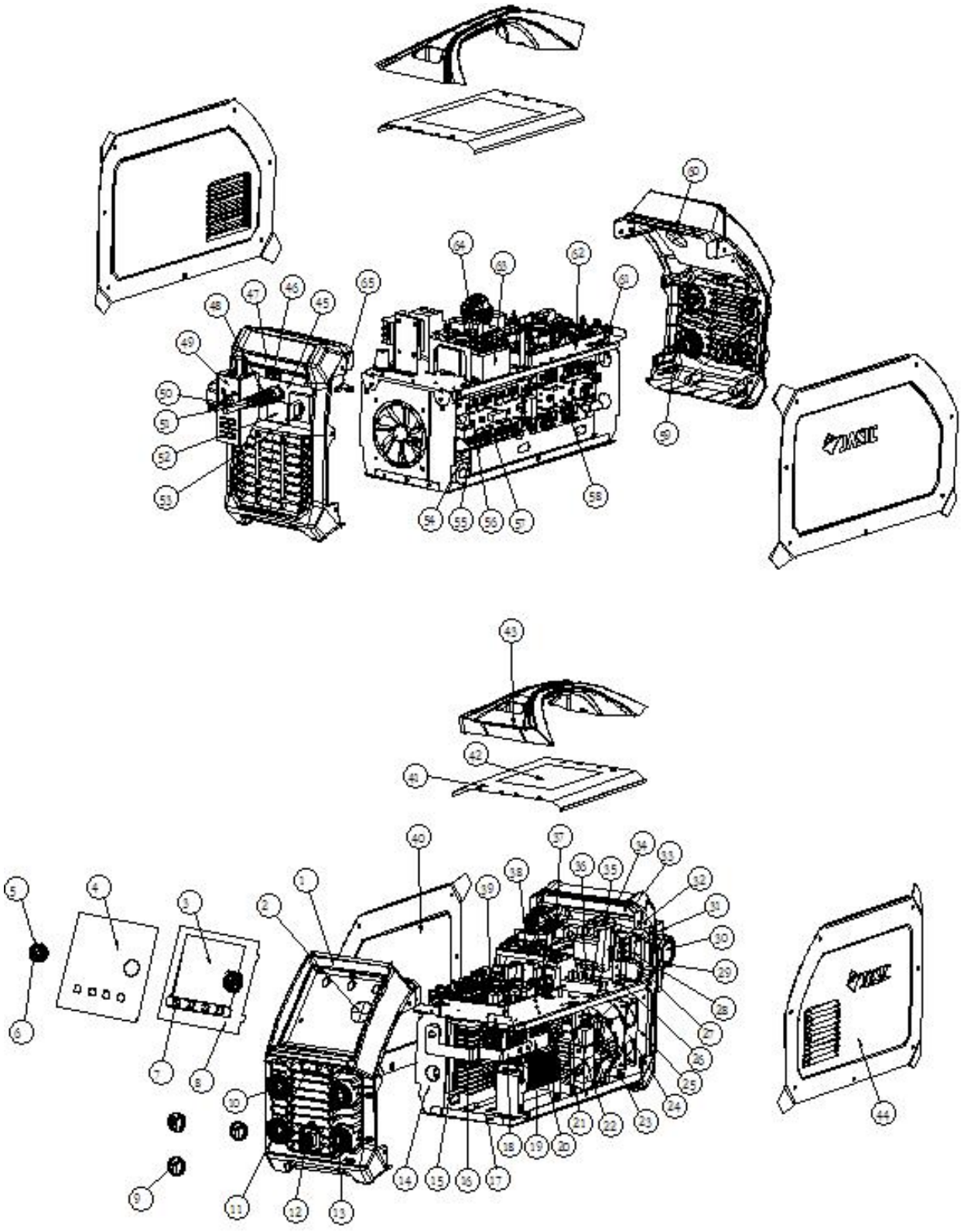
SN	Material code	Descriptions	Qty.	SN	Material code	Descriptions	Qty.
1	51005680	Molded front panel	1	34	51005815	Rear panel bracket	1
2	51002366	Front panel cable grommet	1	35	51000364	Bridge rectifier heat sink	1
3	51005787	Display panel	1	36	10006651	Rectifier bridge	1
4	51006028	CUT80 SC sticker	1	37	10069866	EMC board	1
5	51001893	Small hollow knob	1	38	51005827	EMC board bracket	1
6	51001892	Small hollow knob button	1	39	51005812	CUT80 SC control board	1
7	51005917	Silicon button	1	40	51005712	Left cover	1
8	51005834	HD digital screen panel bracket	1	41	51005824	Top cover	1
9	51002149	Quick socket cover	3	42	51006124	Safety warning sticker	1
10	51002374	Quick socket	3	43	51001782	Plastic handle	1
11	51001902	Plug cover	1	44	51005713	Right cover	1
12	51005738	CNC socket and cable	1	45	51006151	Rear mounting plate	1
13	51005742	Central plasma socket and cable	1	46	51004923	Type-C module	1
14	51006137	Medium septum	1	47	51005364	High-voltage warning sticker	1
15	51005832	Diode insulation plate	1	48	51005828	Air regulator bracket	1
16	51006016	Diode heat sink	1	49	51005688	Air intake sticker	1
17	51006133	Chassis	1	50	51005968	Quick air coupling	1
18	51005910	Connector	1	51	10021917	Cable fastener	1
19	51005763	MMA rectifier board	1	52	51006142	Water tank hole shim	1
20	51006009	Reactor	1	53	10105811	Knob switch	1
21	51005913	Solenoid valve bracket	1	54	51005758	Current sampling board	1
22	51005750	Solenoid valve and air pipe	1	55	51005825	IGBT insulation plate	1

23	51006159	Primary transformer	1	56	51006018	IGBT heat sink	1
24	51002174	DC fan	1	57	51005762	CUT80 SC inverter board	1
25	51005914	Fan bracket	1	58	51005808	CUT80 SC rectifier board	1
26	51005831	Terminal block bracket	1	59	51005695	Plasma socket air coupling	1
27	51005042	Air compressor terminal block	1	60	51005816	Front panel bracket	1
28	51005892	Sticker	1	61	51005829	Fixing bracket of the control board	2
29	51001790	Decorative part of the air regulator	1	62	51006152	Medium septum	1
30	10080422	air regulator	1	63	51005746	Film capacitor	2
31	51005826	Protection cover of the air regulator	1	64	51005817	Copper connector of capacitor	2
32	10080081	AC contactor	1	65	51006148	Cable fastener	1
33	51005678	Molded rear panel	1				

Annex 4: CUT100 SC Equipment Wiring Diagram



Annex 5: CUT100 SC Exploded-view Drawings



Annex 6: CUT100 SC Common Spare Parts List

SN	Material code	Descriptions	Qty.	SN	Material code	Descriptions	Qty.
1	51005680	Molded front panel	1	34	51005815	Rear panel bracket	1
2	51002366	Front panel cable grommet	1	35	51000364	Rectifier bridge heat sink	1
3	51005787	Display panel	1	36	10006651	Rectifier bridge	1
4	51006029	CUT100 SC sticker	1	37	10043995	EMC board	1
5	51001893	Small hollow knob	1	38	51005827	EMC board bracket	1
6	51001892	Small hollow knob button	1	39	51005814	CUT100 SC control board	1
7	51005917	Silicon button	1	40	51005712	Left cover	1
8	51005834	HD digital screen panel bracket	1	41	51005824	Top cover	1
9	51002149	Quick socket cover	3	42	51006125	Safety warning sticker	1
10	51002374	Quick socket	3	43	51001782	Plastic handle	1
11	51001902	Plug cover	1	44	51005713	Right cover	1
12	51005738	CNC socket and cable	1	45	51006151	Rear mounting plate	1
13	51005742	Central plasma socket and cable	1	46	51004923	Type-C module	1
14	51006137	Medium septum	1	47	51005364	High-voltage warning sticker	1
15	51005832	Diode insulation plate	1	48	51005828	air regulator bracket	1
16	51006016	Diode heat sink	1	49	51005688	Air intake sticker	1
17	51006133	Chassis	1	50	51005968	Quick air coupling	1
18	51005910	Connector	1	51	10021917	Cable fastener	1
19	51005763	MMA rectifier board	1	52	51006142	Water tank hole shim	1
20	51006009	Reactor	1	53	10105811	Knob switch	1
21	51005913	Solenoid valve bracket	1	54	51005753	Current sampling board	1
22	51005750	Solenoid valve and air pipe	1	55	51005833	IGBT insulation plate	1

23	51006164	Primary transformer	1	56	51006022	IGBT heat sink	1
24	10071991	DC fan	1	57	51005766	CUT100 SC inverter board	1
25	51005914	Fan bracket	1	58	51005809	CUT100 SC rectifier board	1
26	51005831	Terminal block bracket	1	59	51005695	Plasma socket air coupling	1
27	51005042	Air compressor terminal block	1	60	51005816	Front panel bracket	1
28	51005892	Sticker	1	61	51005829	Fixing bracket of the control board	2
29	51001790	Decorative part of the air regulator	1	62	51006152	Medium septum	1
30	10080422	air regulator	1	63	51005746	Film capacitor	2
31	51005826	Protection cover of the air regulator	1	64	51005817	Copper connector of capacitor	2
32	10080081	AC contactor	1	65	51006148	Cable fastener	1
33	51005678	Molded rear panel	1				

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