

Operating Manual

MODEL :WI-250/WI-315/WI-415

(POWER IGBT CONTROLIED ,DC WELDING POWER SOURCE)

Safety tips !



It may cause injury to you and others during the welding, please take good protection when welding.

For the details, please read the operator's guide.

Electric-shock: it would be fatal !

- Set earth cable to the standard.
- No touching electric parts with bare hands, wet hands or wet clothes.
- Make sure that you and working piece are in insulation circumstances.
- Make sure that your working is in safety.

Smoke—may be harmful to your health.

- Keep your head away from the smoke.
- When welding, keep fresh air and avoid breathing in the smoke.

Arc-emission---may be harmful to your eyes and skin

- Wear suitable welding mask and clothes to protect your eyes and skin.
- Use suitable screen or curtain to keep the look-ups from the emission .
- The welding splash may cause fire , so make sure that there is no flammable things nearby the working place.

Noises—too much noise may be harmful to your hearing.

- Please wear something to protect your ears from the noises.
- Warn the look-ups of the hidden harm the noise may cause.

Break-down: ask the professional for help

- If you have any problems in setting up or operating, please first consult this manual.
- If you still can not understand after reading this manual, please contact your supplier or manufacturer to get professional help.



Warning !

Use electric leakage protection when using this machine!!!

About the machine

Products introduction.

★Advanced IGBT technology.

△High inverter frequency,Reduce the weight and size of the machine obviously.

△Reduce the miss of copper and iron,improve the efficient obviously.energy saving.

△Frequency of switch is out of the Audio frequency ,almost eliminate the noise.

★Advanced control mode.

△Advanced control strategy.improve the function of the machine abviously.Satisfy the welding technology.

△Widespread adapt to acid and alkali welding rod.

△With the feature of easy arc starting, little spark,stable current etc.

★Futures of the MMA series welding machines.

△Efficient,energy saving,stable arc,easy control welding pool,high no-load voltage and well power compensation, widely used,can be used in high places and field working,decorations of indoor and outdoor .

★Beautiful shape and design.

△Very beautiful stream-lined structure.

△The former and back panel is made of hi-strength plastic,make sure the machine work properly on the circumstances of impact and falling.

△Excellent insulating property.

Welcome to use our machine,and give us your valuable advice!



Warning !

This equipment is mainly used in the industry filed.It may Cause radio interference, preventive action should be taken by the operator.

Main characters table

Model Parameters	WI-250		WI-315		WI-415	
Power voltage (V)	Single phase		Single phase		Single phase	
	110V	220V	110V	220V	110V	220V
Frequency (HZ)	50/60		50/60		50/60	
Rated input capacity(KVA)	4	5	4.5	6.2	5.2	8
No-load voltage(V)	65	65	65	65	65	65
Out put current range(A)	20-120	20-150	20-140	20-185	20-160	20-220
Rated output voltage(V)	24.8	26	25.6	27.4	26.4	28.8
Drive adjustment range (A)	0	0	0-100	0-100	0-100	0-100
Duty cycle (%)	60	60	60	60	60	60
No-load loss (W)	50	50	50	50	50	50
Efficiency (%)	85	85	85	85	85	85
Power factor	0.75		0.75		0.75	
Insulation class	F			F		F
Protection class of the shell	IP21		IP21		IP21	
Weight (kg)	7.5		10		12	
Dimension (mm)	375*150*280		440*200*380		440*200*380	

Installation

This machine have the function of voltage compensation,it can work properly when the power change around 15% of the rated voltage.

In order to reduce the descent of voltage when using long wires, we advise you to use large cross-section wire. If the wire is too long,it may cause affection on the arc and other functions, so we advise you to use the recommended length of wire.

- 1.Make sure the vent opening is not covered and blocked.
- 2.Connecting the shell to the ground reliably with the wire which crossing-length is more than 6mm^2 . Method:connect the grounding point at the back of the machine to the ground,or make sure the grounding point of the power is grounded reliably. In order to be more save,you can use those two methods at the same time.
- 3.Connect the welding clamp and earth wire correctly according to the picture below. Firstly make sure the wire connected to the welding clamp and the high speed plug reliably,then connect the high speed plug to the negative pole "-" socket . Turn the plug tightly clockwise.
- 4.Connect the high speed plug of return circuit to the positive pole"+" socket, Turn the plug tightly clockwised,clip the workpiece with the clamp on the other side.
- 5.Be careful with the pole of the power! there are two way to connect DC welding machine :straight polarity and reverse polarity;
Straight polarity:connect the weld holder to the negative pole,workpiece to the positive pole.
Reverse polarity:connect the weld holder to the positive pole,workpiece to the negative pole.
Choose the way according to process requirements, if you choose the connecting way incorrectly,it will cause unstable arc,big spark,stick welding etc. Once these phenomenon happen,change the connecting pole.
- 6.Connecting the corresponding distribution box according to the input voltage of the welding machine.Never input incorrect voltage.make sure the error of the voltage within bounds.



If the workpiece is too far away from the welding machine(50-100m),the secondary line(the weld wire and the earth wire)is much more longer. Under this circumstance,choose larger-cross section wire to reduce the voltage drop.

Operation

- 1.Turn the button to the position"on",the watch show the current,the electric fan in the machine begin to work at the same time.
- 2.Use the suitable current and force according to the thickness of the workpiece,the diameter of the welding rod and the process requirements.
- 3.Clip the welding rod with the welding clamp,then the machine is in the state of MMA readiness for action.

Specification of welding rod and correspondence current.

Specification of rod	φ 2.5	φ 3.2	φ 4.0	φ 5.0
Welding current	70-100A	110-140A	170-220A	230-280A

4.The "force" adjusting knob is used to adjust welding performance, working together with "welding current" knob during vertical position welding and overhead position welding can reach very ideal welding effect.

5."arc current" is used to adjust the arc starting.



Warning!

All of those operation should be taken on the condition of power off. The right order is: connect the welding wire and earth wire to the machine first, make sure they are reliable not loose, contact the power at last.

Attentions and preventive measures



1.Circumstances

1)The welding operation should be on a relative dry environment. The air humidity should not more than 90%.

2)The temperature should be during -10°C to 40°C.

3)Avoid operating the machine in the rain or sunshine, avoid water enter the machine.

4)Do not operate machine in dust environment or aggressive gas environment.

5)Avoid shielding gas welding operation in the environment of strong air flow.

2.Safety

1. Make sure the working area is adequately ventilated .

Welding machine is light and its structure is compact .The electromagnetic fields generated by the high currents .So natural wind is not satisfy in cooling down

components .there is axial-flow fan in inter-machine in order to force to cool down it .

2. No over-load !

Limited to welding current strictly according to max allowable current of all kinds of duty cycles . Do not exceed load working in order to prevent from shorting use lifetime of welding machine even burning up machine .

3. No over-voltage !

Power voltage of welding machine is according to main technical data sheet .With this situation ,automatic compensation circuit of voltage may ensure that welding current will not exceed to allowable volume .If power voltage is exceeded to allowable volume ,that may damaged to components .Please more careful .

4 . There is a grounding screw behind machine and which is marked with ground .Mantle must be connected reliably by cable which section is10 square millimeter .

5. If it is over the duty cycle when the machine is working, the machine will stop working and enter the state of protection.this mains that it is over the duty cycle,the over heat started the temperature control switch and make the machine stop working,the red light is on at the front panel.in this condition,do not pull off the power plug,so that the electric fan can cool the machine down,when the red light is off,the temperature fall to the standard range,then it can back to work again.

The might happen problem during welding.

This phenomenon listed below are related to the accessory ,the welding material,environment factor,power supply,please try to change the environment to stop those problem from happening.

A.Difficult arc starting, and easy to arc breaking.

- 1.Make sure the welding rod is in high quality,bad quality welding rod can not reach the requirement of high quality welding.
- 2.The welding rod which is not drying treatment also not easy to start arc, and it may cause unstable arc.
- 3.It will cause the voltage drop if you use a longer wire,so we advise you to use shorten the length of the wire.

B.Output current can not reach the rated value.

The power voltage deviate from the rated value will cause the output current different from the adjusting value;when the power voltage is lower than the rated value, the output current may also lower than the rated value.

C. The current is not stable when welding.

This may be related to those factors:

- 1.The voltage of power system is changed.
- 2.The interference from the power system and other electric equipment.

D.Large spark.

- 1.The current is adjusted too big, and the diameter of the rod is too small.
- 2.The pole of the output was reverse connection .Normally,connect the welding pole to the negative pole of the power, the workpiece connected to positive pole.please change the pole of power .

Maintenance

- 1).Clear the dust at regular intervals with clean and dry compressed air; if the working condition have heavy smoke and pollution , the welding machine should be cleaned once a month.
- 2).The compressed air should be reduced to the required pressure lest the little parts in the welding machine be damaged.
- 3).Check whether the inner gas-electricity connection is well (esp. the plugs), and tighten the loose connection; if there is oxidization ,remove it with sand paper and then re-connect.
- 4).To avoid water and rain , if there is ,dry it in time, and check the insulation with megameter (including that between the connection and that between the case and the connection) .Only when there is no abnormal phenomena can the welding continue.
- 5).If the machine is not used for long time , put it into the original packing in dry condition.

Trouble shooting



Attention:the operator must have electrical Professional knowledge and safety knowledge,the operator should have the certifications to prove his knowledge and ability.Before overhaul, we advise you to contact us and get permission from us.

1、WI-250/315/415 Trouble and Remedy.

Faults	Methods
Power indicator and the fan is not working, there is no welding output .	<ol style="list-style-type: none">1. Make sure power switch is close .2. Make sure electrify wire net(which is connected to input cable) is in work .3. If the accessory power supply work well.
Power indicator doesn't work , fan is working, there is no welding output .	<ol style="list-style-type: none">1. If the accessory power supply has break down.2. The accessory power supply part on the control board is break down.
Power indicator and the fan is working, there is no welding output .	<ol style="list-style-type: none">1. Check if the wire in the machine connect well.2. The output wire short-circuit or bad contact.3. A fault in the inverter circuit(the abnormal indicator light is on).

	<p>Please pull out one of connect wire on the inverter circuit(close to the front panel VH-07) and the wire which connected to the main transformer, then reboot.</p> <p>If the abnormal indicator light is not on,then the fault is on the inverter,otherwise the fault is on the other inverter.cut down the power,plug in the DC power supply wire of the fault inverter(do not plug the wire connected to the main transformer, reboot again):</p> <p>(1)If the abnormal indicator light is not on,then the fault would be on the middle board:</p> <p>a, the transformer on the middle board have break down.</p> <p>b,May be the MOS have break down,replace it.</p> <p>(2)If the abnormal indicator light is on,then the fault would be on the MOS, some of the field effect transistors have break down, replace it with the same model.</p> <p>4.The feedback circuit break down(the abnormal indicator light is on),contact the supplier.</p>
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Trouble shooting

2、WI-250/315/415 Trouble and Remedy.

Faults	Methods
Power indicator and the fan is not working, there is no welding output .	<ol style="list-style-type: none"> 1. Make sure power switch is close . 2. Make sure electrify wire net(which is connected to input cable) is in work .
Power indicator doesn't work , fan doesn't work, there is no welding output .	<ol style="list-style-type: none"> 1. 220v power is not stabilizing (input cable is too slender)or input cable is connected to electrify wire net cause machine is in protection circuit .Increase the section of input cable and tighten input connector firmly .Turn off machine 5-10 minutes then open it again . 2. Open and close power switch in short time cause protection circuit is working .Close machine and open it again after 5-10 minutes . 3. Cables get loose between power switch and power board ,tighten them again .
Fan is working ,welding current is not stable or out of potential control of the potentiometer.	<ol style="list-style-type: none"> 1. The 1K potentiometer is in bad quality,replace it . 2. Check the connection parts if they are in poor contact.

<p>Fan is working, abnormal indicator light is not on ,there is no welding output .</p>	<ol style="list-style-type: none"> 1. Check if components are in poor contact . 2. Check if connector of output terminal is break circuit or poor contact. 3. Check the voltage between the up board and power board(VH-07),the voltage is around 380v 4. If there is some question in control circuit ,please connect with seller or OUR company and replace it .
<p>Fan is working and abnormal indicator is not on ,but there is no welding output .</p>	<ol style="list-style-type: none"> 1. Maybe over-current protection is working ,please turn off the machine and wait until the abnormal indicator is off , reboot the machine . 2. Maybe overheated protection is working ,wait for 5-10minutes.the machine will recover. 3. Maybe there is something wrong with the inverter circuit: 1)Please pull out the power plug of main transformer(near the fan VH-07) which is on MOS board then open the machine again. (1) If the abnormal indicator is still on ,some of MOS board is damaged ,check and replace it . (2) If the abnormal indicator is not on : a. Maybe transformer of middle board is damaged ,measure primary inductance volume and Q volume of main transformer by inductance bridge . b. Maybe some of secondary rectifier tube of transformer is broken ,check and replace rectifier tube . 4.Maybe feedback circuit is in fault .