MMA ARC/TIG

WELDING MACHINE

INTIG 250

INSTRUCTION MANUAL

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Safety Caution

Electric shock——may lead to death !!

- Set the earth fitting according to applying standard.
- It is forbidden to touch the electric parts and electrode when the skin is naked, wearing wet gloves or clothes.
- Make sure you are insulated from the ground and the workshop.
- Make sure you are in safe position.

Gas———may be harmful to health!

Arc radiation——Harmful to your eye and burn your skin.

- Use suitable helmet and light filter, wear protective garment to protect eye and body.
- Use suitable helmet or curtain to protect looker-on.

Fire

Welding spark may cause fire, make sure the welding area is free from explosives and inflammable materials.

Malfunction——When trouble, count on the professionals

- If trouble in installation and operation, please follow this manual instruction to check up.
- If fail to fully understand the manual, or fail to solve the problem with the instruction, you should contact us.

About the machine

Welding machine is a rectifier adopting the most advanced inverter technology.

The development of inverter gas-shielded welding equipment profits from the development of the inverter power supply theory and components. Inverter gas-shielded welding power source utilizes high-power component MOSFET to transfer 50/60HZ frequency up to 100KHZ, then reduce the voltage and commutate, and output high-power voltage via PWM technology. Because of the great reduction of the main transformer's weight and volume; the efficiency increases. The development of inverter welding equipment is considered to be a revolution for welding industry.

Welding power source can offer stronger, more concentrated and more stable arc. When stick and work piece get short, its response will be quicker. It means that it is easier to design into welding machine with different dynamic characteristics, and it even can be adjusted for specialty to make arc softer or harder.

The machine can be for multi-use, and can weld stainless steel, carbon steel, copper and other metal, and also can use for traditional electric welding. Its transfer efficiency is above 85%.

CAUTION!

The machine is mainly used in industry. It will produce radio wave, so the worker should make fully preparation for protection.

model parameters	**IN TIG-250**
Power voltage(V)	3 phaseAC380V ±15%
frequency (HZ)	50/60
Rated input current (A)	14.4
No-load volt. (V)	54
Output current volt. (A)	20-250
Rated working volt. (V)	20
Force adjustment (A)	0-100
Duty cycle (%)	60
No-load loss (W)	60
Arcing way	HF
Efficiency (%)	85
Power factor	0.93
Insulation grade	F
Housing protection grade	FP21
weight (kg)	19
Dimensions (mm)	**480 X 204 X 303**

INSTALLMENT

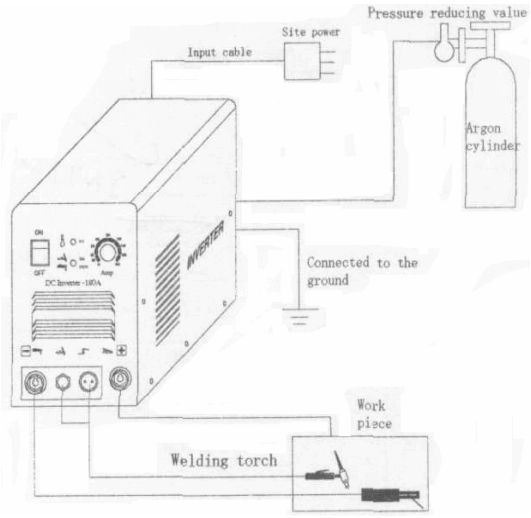
The machine is equipment with power voltage compensation equipment. When power voltage moves between± 15% of rated voltage, it still can work normally.

When use long cable, in order to prevent voltage form going down, bigger section cable is suggested. If cable is too long, it may affect the performance of the power system. So we suggest you to use configured length

1. Make sure that the air intake of the machine is not blocked or covered.

2. Make good connection of shielded gas source. Gas supply passage includes cylinder, argon Regulator flow meter and pipe.
3. Use inducting cable whose section is not less than 6 mm^2 to connect the housing to the ground. The way is from the ground-connecting screw at the back to the earth device.
4. Correctly connect the arc torch or holder according to the sketch. When use MMA welding; Make sure the cable, holder and fastening plug have been connected with the ground. Put the fastening plug into the fastening socket at the "-"polarity and fasten it clockwise.
5. Put the fastening plug of the cable to fastening socket of "+" polarity at the front panel, fasten it clockwise, and the earth clamp at the other terminal clamps the work piece.
6. According to input voltage grade, connect power cable with power supply *box* of relevant voltage

grade. Make sure voltage is within permissible range. After the above job, installment is finished and welding is Machine is ready for Welding.



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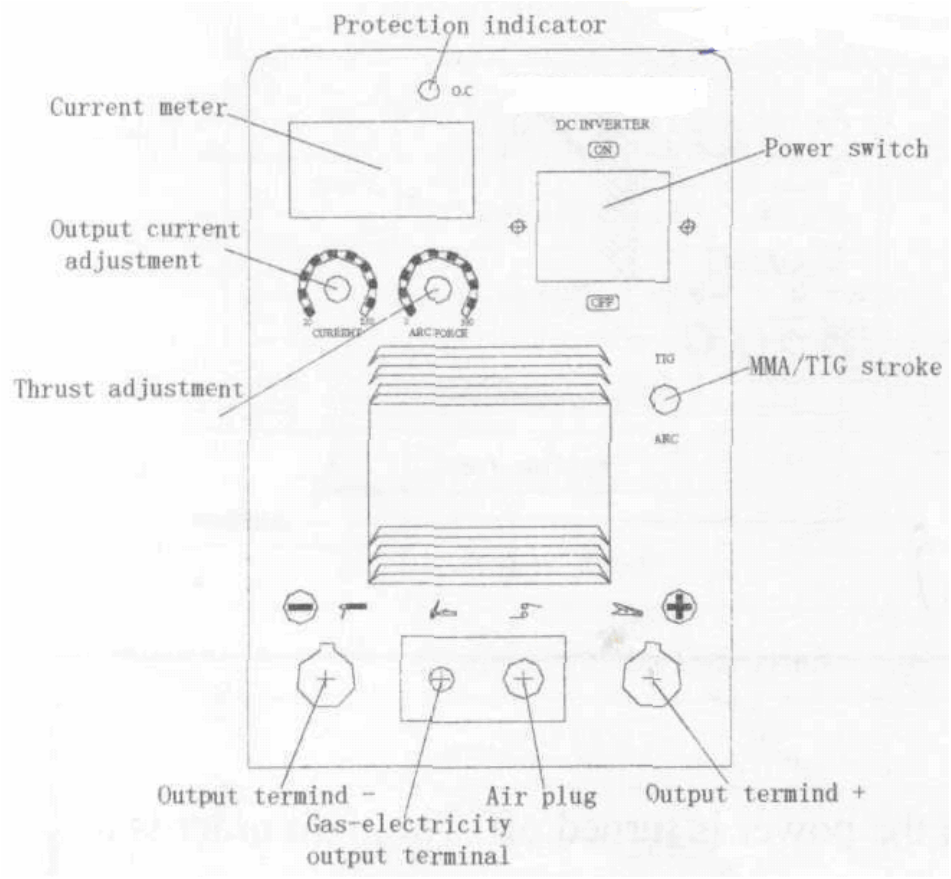
warning

Before connecting operation please make sure all the power is turned off. The right order is to connect the welding cable and ground cable to the machine first, and make sure they are firmly connected and then turn on the Machine.

IN TIG-250


Protection indicator
O.C
Current meter
DC INVERTER
ON
Power switch
Output current adjustment
OFF
CURRENT
ARC FORCE
TIG
MMA/TIG stroke
Thrust adjustment
ARC
Output termind -
Gas-electricity output terminal
Air plug
Output termind +

OPERATION

TIG WELDING DESCRIPTION

1. Turn on the power switch at the Front panel digital current meter is normal, fan will start. Make sure that the function switch on the front panel is in TIG Mode.

2. Open the valve of argon cylinder, adjust the volume of flow meter and make it is adequate to welding.

3. Press switch of torch, electromagnetic valve is started. Sound of HP arc striking can be heard, at the same time argon is flowing from torch. NOTES: When welding is first operated, user must press switch of torch several seconds and begin to weld until all of air is be drained out. When welding is over, argon will still flow out for some seconds in order to protect welding spot before cooled down .So torch must be kept in welding place some time after arc has been extinguished.

4. Set suitable welding current and make sure welding current is adequate to thickness of work piece and process demand.

5. It is 2-4 mm from welding tungsten electrode to work piece, press control knob of torch, burn and strike arc, sound of HF arc-striking will be diminished .The welding machine can be operated now.

STICKING DESCRIPTION

1. Open power switch of front panel, fan is beginning to work.
2. Make sure function switch of front panel is on MMA Mode.
3. Make sure welding current is adequate to thickness of work piece.

warning:

During welding, it is forbidden to pull off any plug or cable in use, or it will lead to life-threatening danger and sever damage of the machine.

NOTES OR PREVENTIVE MEASURES

1. Environment

1) The machine can perform in environment where conditions are dry with a dampness lever of max 90%.
2) Ambient temperature is between 10 to 40 degrees centigrade.
3) Avoid welding in sunshine or drippings.
4) Do not use the machine in environment where condition is polluted with conductive dust on the air or corrosiveness gas on the air.
5) Avoid gas welding in the environment of strong airflow.

2) Safety **norms**

The welding machine has installed protection circuit of over voltage and current and heat. When voltage and output current and temperature of machine are exceeding the rate standard, welding machine will stop working automatically. Because that will cause damage to welding machine, user must pay attention to the following.

1) **The working area is adequately ventilated!**

The welding machine is powerful machine, when it is being operated, it delivers high currents, and natural wind will not satisfy machine cooling demands. So there is a fan inside the machine to cool down machine. Make sure the intake is not in blocked or covered, it is 0.3 meter from welding machine objects of environment. User should make sure the working area is adequately ventilated. It is important for the performance and the long life of the machine.

2) Do not over Load!

The operator should remember long life duty cycle of the machine and has to be operated within the permissible limits & Duty cycle.
Keep welding current is not exceed max duty cycle current.
Over-load current will damage the machine.

3) No over voltage

Power voltage can be found in the technical parameter table Automatic compensation circuit will ensure that welding current is in allowable limit. If power voltage is exceeding allow weld range it may cause damage to components of machine. The operator should understand the situation and lake preventive measures.

4) There is a grounding screw behind welding machine, there is grounding marker on it Mantle must be grounded reliable with cable which section is over 6 square millimeter I order to prevent from static electricity and leaking.
5) If welding time is exceeded duty cycle limited, welding machine will stop working for protection. Because machine is overheated, temperature control switch is on "ON" position and the indicator light is red. In this situation, you don't have to pull the plug, in order to let the fan cool the machine. When the indicator light is off, and the temperature goes down to the standard range, it can weld again.

QUESTIONS TO BE RUN INTO DURING WELDING

Fittings, welding materials, environment factor, supply powers maybe have something to do with welding. User must try to improve welding environment.

A. Black welding Spot

——Welding spot is not prevented from oxidizing .User may check as following:

1. Make sure the valve of argon cylinder is opened and its pressure is enough, argon cylinder must be filled up to enough pressure.
2. Check if the flow meter is opened and has enough flow .User can choose different flow according to welding current in order to save gas .But too small flow may cause black welding spot because preventive gas is too short to cover welding spot .We suggest that flow of argon must be kept at min 5L/min.
3. Check if torch is in blocked
4. If gas circuit is not air-tight or gas is not pure it can lower welding quality.
5. If air is flowing powerfully in welding environment .that can lower welding quality.

B.Arc-striking difficult and easy to pause

1. Make sure quality of tungsten electrode is high.
2. Grind end of the tungsten electrode to taper .If tungsten electrode is not grinded .that will be difficult to strike arc and cause unstable arc.

C. Output current "not" to rated value:

When power voltage departs from the rated value, it will make the output current not matched with rated value; When voltage is lower than rated value, the max output may lower than rated value.

D, Current is not stabilizing when machine is been operating:

It has something with factors as following:

1. Electric wire net voltage has been changed.
2. There is harmful interference from electric wire net or other equipment.

E.When use MMA welding, too much spatter.

1. Maybe current is too big and stick's diameter is too small;

MAINTENANCE

CAUTION:

Before Maintenance and checking, power must be turned off, and before Opening the housing, make sure the power plug is pulled off.

1. Remove dust by dry and clean compressed air regularly, if welding machine is operating in environment with smokes and pollution air, the machine need remove dust everyday.
2. Pressure of compressed air must be inside the reasonable arrangement in order to prevent damaging to small components of inter-machine.
3. Check inter circuit of welding machine regularly and make sure the cable Circuit is connected correctly and connectors are connected tightly (especially insert connector and components). If scale and loose are found, please give a good polish to them, then connect them again tightly.
4. Avoid water and steam enter into inter-machine, if them enter into machine, please dry inter-machine then check insulation of machine.
5. If welding machine is not operated for long time, it must be put into packing box and store in dry environment.

BEFORE CHECKING

WARNING

Blind experiment and careless repair may lead to more problem of the machine that will make formal check and repair more difficult. When the machine is electrified, the naked parts contain life-threatening voltage. Any direct and indirect touch will cause electric shock, and severe electric shock will lead to death.