
OWNER'S MANUAL

MMA120/140/160/180/200
250/315/400

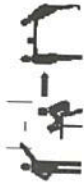
APARAT SURUP

SAFETY TIPS

During the welding please make protection in case any injury.

A. Only qualified personnel or professionals that have relevant knowledge of welders are allowed to operate the machine.

- * Using individual protective equipments which are approved by National Security Inspection Department.
- * The operator must be the one who has operation certificate.
- * Please cut off the power when the machine is under repairing.



B. Electric shock may cause to Serious Injury even death!

- * According to the standard install the earthing device.
- * Forbid to touch the live parts when with wet gloves or clothing.
- * Make sure you are in the state of insulation from ground and work place.
- * Make sure your work place is safety.



C. Welding fumes and gases are hazardous to health!

- * Keep your head away from the fumes in case inhaling waste gas.
- * While welding please use aerator to keep the work place in fresh air.



D. Arc light radiation may hurt your eyes and skins.

- * Use welding helmet, wear protective clothing to protect your eyes and body.
- * Use a mask or shade to protect spectators from hurt.



E. Improper use may cause fire, explosion and other unexpected accidents.

- * Never store flammables and combustible gases in welding areas.
- * Provide fire-fighting equipment for emergencies
- * Please don't attempt to weld sealed containers.



F. Hot workpiece will course to serious scald.

- * Don't touch it with bare hand.
- * After long time using the welder please let it cool off a period of time.



G. Noise----- Too much noise may be harmful to your hearing.

- * Please wear something to protect your ears from noise.
- * Warn the spectator of the hidden harm the noise may cause.



H. Magnetic field infect heart pacemaker.

- * Before seek advice from doctor, the person who use heat pacemaker should keep away from welding place.



I. Some parts may cause personal injury.

- * You should keep away from some parts (like fan).
- * The panel, cover, and baffle plate etc. should be closed.



J. Break down----- Ask the professional for help

- * If you have any problem in setting up or operating, please first consult this manual.
- * If you still cannot understand after reading this manual, please contact your supplier or manufacture to get professional help.



2 PRODUCT INTRODUCTION

A. Advanced IGBT inverter technology

- * Inverter frequency is 20KHz, and reduce the volume and weight of the machine.
- * Reduce the damage of Copper and Iron, obviously increase the welding frequency, and energy-conserving result is remarkable.
- * On-off frequency is out of audio frequency, nearly abate the noise pollution.

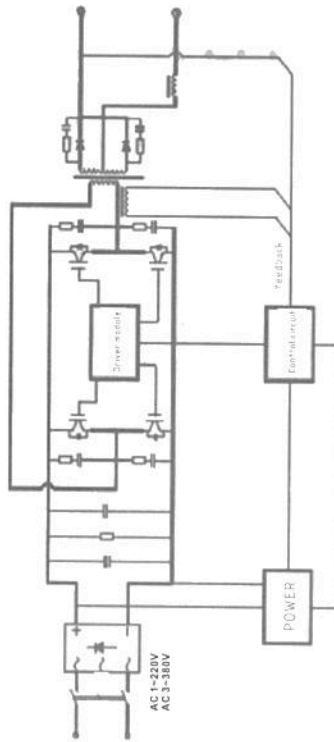
B. Leading control mode

- * Closed loop feedback control, the output voltage is stable, strong adaptability for electricity network (+ -15%).
- * The welding voltage can be continue adjusting to exactly match welding current.
- * Special welding dynamic characteristic control the circuit, stable welding arc, little spatter, good welding surface, high welding efficiency.
- * Self-sustain / arc extinguishing function operation mode, suit different welding need.
- * CO2 gas shield weld or mixed gases shielded weld.

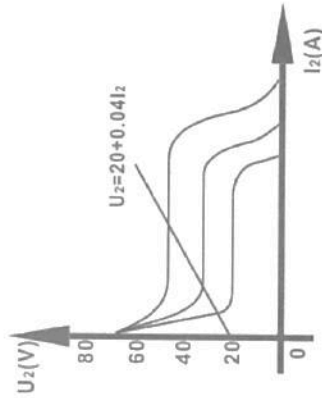
3 MAIN TECHNICAL PARAMETERS

Technical Data	MMA-120	MMA-140	MMA-160	MMA-180	MMA-200	MMA-220	MMA-250	MMA-315	MMA-400	MMA-500	MMA-630
Input Voltage(V)	Ac220±15%	Ac220±15%	Ac220±15%	Ac220±15%	Ac220±15%	Ac220±15%	Ac220±15%	Ac380±15%	Ac380±15%	Ac380±15%	Ac380±15%
Input Power(KW)	4.1	4.9	5.8	6.8	7.8	8.8	10.4	13	18.2	25.3	35.1
No-load Voltage(V)	60	60	60	60	60	60	60	62	67	67	67
Current Range(A)	10-120	10-140	10-160	10-180	10-200	10-220	10-250	30-315	30-400	30-500	30-630
Duty cycle(%)	40	40/60	40/60	40/60	60	60	60	60	60	60	60
Electrode Diameter(mm)	Ø1.6-3.2	Ø1.6-3.2	Ø1.6-4.0	Ø1.6-4.0	Ø1.6-5.0	Ø1.6-5.0	Ø1.6-5.0	Ø1.6-6.0	Ø1.6-6.0	Ø1.6-6.0	Ø1.6-6.0
Power factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.83	0.83	0.83	0.93
Protection Degree	IP21S	IP21S	IP21S	IP21S	IP21S	IP21S	IP21S	IP21S	IP21S	IP21S	IP21S
Weight(KG)	4.3	5.5	5.5	6.1	6.2	6.3	6.5	9.3	10.5	12.3	15.2
Dimensions(mm)	300*125*190	290*125*200	290*125*200	370*135*225	370*135*225	370*135*225	490*210*365	490*210*365	490*210*365	490*210*365	490*210*365

4. 1 Electrical principle diagram



4. 2 Output characteristic figure



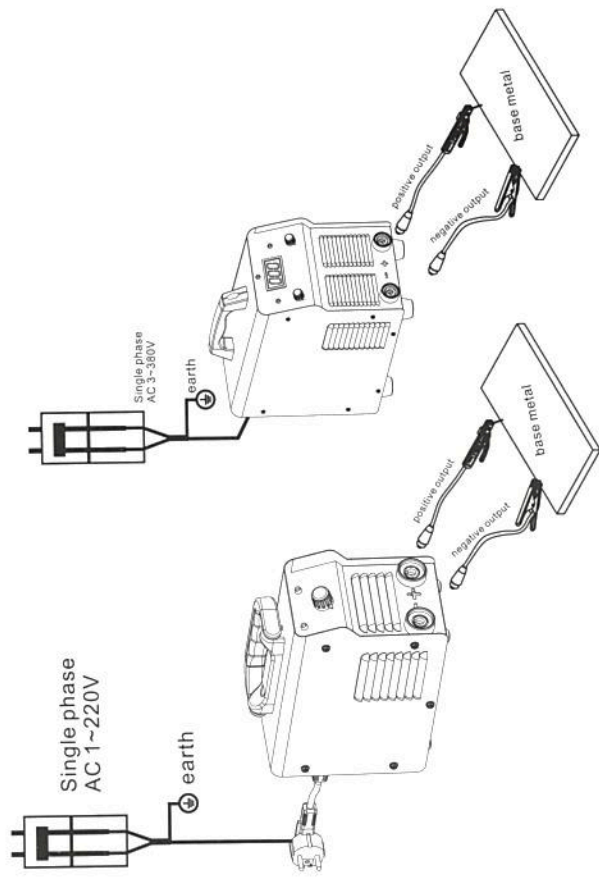
5 Operation control and instructions

FRONT PANEL

- 1 The welding current adjustment knob: user according to the knob to adjust the input current
- 2 The power indicator light : when the power indicator light is lit, it means the machine power switch is on.
- 3 The overheat indicator lights: overheat indicator light is lit, the internal of the machine's temperature is too high, it is in a state of thermal protection.
- 4 The positive output terminal: the positive output terminal, connect electrode holder.
- 5 the Negative output terminal: the negative output terminal, connect earth clamp
- 8 Current meter
- 9 Thrust current adjusting knob
- 10 Overheating indicator lights

BACK PANEL

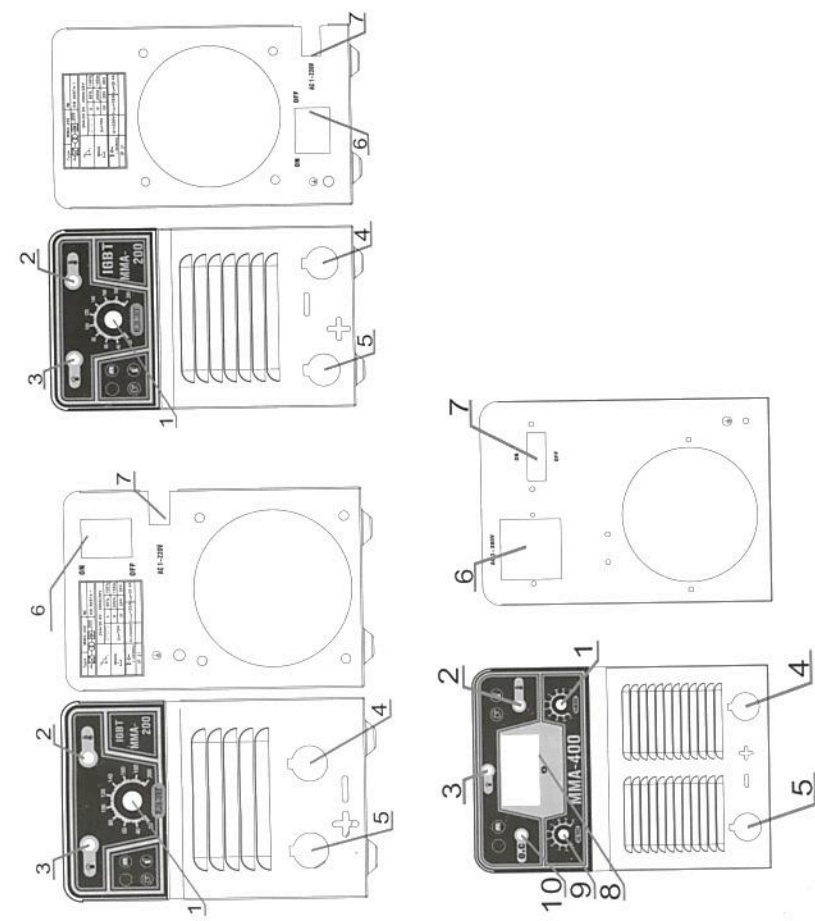
6. The power switch, the power switch control switch.
7. The power input; power input cable



- 4 Connect the cable with welding holder into front panel's positive socket and tighten clockwise.
- 5 Connect the cable with clamp into front panel's negative panel and tighten clockwise
- 6 Please grounding the screw marked with + at back panel and make sure good connection.
- 7 The item 6.1(4)&6.1(5) is DCEP mode. operator can select DCEN mode according to parent metal and electrode. generally, basic electrode adopt DCEP, and acid electrode is without special regulation.

6.2 operation:

- 1 turn on the switch, power indicator light, fan normally working, and the welding machine start work.
- 2 Pay attention the cable connection polarity, generally there are two mode: DCEN and DCEP. DCEN :welding holder connect negative, workpiece connect positive. it depends on workpiece performance as welding, if connection is not suitable, it will cause unstable arc, big splash and electrode stick.
- 3 To reduce the cable voltage fall, Please choose the cable with bigger sectional area if great distance between workpiece and welding machine and two cables (welding cable and earthing cable) are long
- 4 Adjust welding current according to electrode's specification, clip the electrode, make use of short circuit arc, then it can welding. take 6.3 as reference for welding parameter.



INSTALLATION, DEBUGGING AND OPERATION

Attention: please installation and debugging as following step
 Electrical connection should be operated after distribution box shut down
 Protection class is IP21S, it is not allowed to use in rain

6.1 installation :

- 1 each machine is equipped with a cable, connect the cable with relevant voltage grade according to welding machine's input voltage, don't mistake the voltage grade.
- 2 To prevent oxidation, the connection between primary power supply and power terminal/sockets should be good.
- 3 Check the input voltage value is within wave range with multimeter

6.3 THE WELDING PROCESS PARAMETERS (THIS FORM IS FOR REFERENCE ONLY)

Electrode diameter	Recommend a welding current	Recommend a welding voltage
1.0	20 ~ 50	20.8 ~ 22
1.6	30 ~ 60	21.2 ~ 22.4
2.0	50 ~ 90	22 ~ 23.6
2.5	70 ~ 120	21.8 ~ 24.8
3.2	90 ~ 140	23.6 ~ 25.6
4.0	130 ~ 200	25.2 ~ 28

The Data in this table is suitable for welding low carbon steel, other materials you can reference about material and process manual

7.ATTENTION

7.1 : THE ENVIRONMENT FOR USING

1. The welding operation shall be carried out in a relatively dry environment, air humidity generally should not exceed 90%.
2. Temperature should be around in minus 10 degree and 40 degree.
3. Avoid to welding in the sun or rain, don't let the water or rain infiltration into the welding machine.
4. Avoid to welding under the environment of dust area or containing corrosive gas
5. Avoid to work in the environment of the strong air flow for gas shielded welding operation.
6. Welding machine should be placed to horizontal position .the gradient must not exceed 15 degrees.

7.2 : SAFETY POINT

Welding machine has been installed in overvoltage, overcurrent and overheating protection circuit, when the grid voltage, output current and internal temperature more than set standard, after the welding machine will automatically stop working. But the use of excessive (high voltage) still can lead to welding machine, so you still need to pay attention to the following items:

1. **ENSURE THE GOOD VENTILATION.**
this is industrial welding machine. In operation, the big working current through the welding machine, natural ventilation can not meet the requirement of the cold welding machine, so we built-in two fans to effectively cold welding machine to make it work smoothly. Users shall confirm the ventilated place has not been covered or blocked. Welding machine and the surrounding the distance of the object should not be less than 0.3 meters. Users should always pay attention to maintain good ventilation, because it is very important to for the welder better job and ensure a longer service life.

2 NO OVER-LOADING WORKING

you must use welding machine by the duty cycle rate, the welding current shall not exceed the maximum load current. Current overload can significantly shorten the service life and may even burn welder.

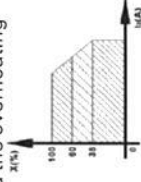
3 NO OVER-VOLTAGE WORKING

the power voltage range of the machine see the main parameter table, under this circumstance the inner voltage will complement all by itself, and guarantee the welding current not surpass the allowed value, please be more careful if the parts are damaged because of the over-voltage.

4 each machine has a screw for earth connecting, the mask is earth signal, please choose a 2.5mm² cable to connect the case to the machine to earth to avoid breakdown caused by static electricity or electricity or electricity-leaking

5 If the welding work is more than duty cycle, welding machine may suddenly enter into the state of protection and suspend the work, the machine is Excessive heat triggered the temperature control switch, welding machine stop working, and the overheating

6 protection lights. under this case, neednt unplug the power, so that the cooling fan can continue to work, when light is put out, the temperature dropped to standard range. Could start welding.



8, MAINTENANCE AND SERVICE

safety warning: These operations require the operator must have enough electrical aspects of the professional knowledge and comprehensive security sense. The operator should hold certificates to prove their ability and knowledge of effective, please make sure the welding input cable is disconnected with power before open the main case.

1. Regularly check circuit connection of welding machine, confirm the wiring is correct, firmly connection head (especially the insert joint or components), if find rust and loose on the machine, sanding paper burnish drops of rust layer or oxide film, reconnect, and tighten.
2. when power is on, do not let hand, the hair close to electrification device in the machine, such as fan, avoid injury or machine damage.
3. Regularly use a dry compressed air to blow off dust, if the welder is used in smoke and air pollution of the environment, should be dust every day.
4. Avoid water or water vapor into the internal welding machine. If appear this kind of situation, and dry interior welding machine. Then insulation situation of welding machine is measured by the framagger (including between connection point and between connections and the case).
5. Regularly check whether insulation skin of all welding machine cable is damaged, bind up or replace cable
6. If don't use welding machine long time, welding machine should be put back to the original packaging in a dry environment.

9, FAILURE AND MAINTENANCE

safety warning: These operations require the operator must have enough electrical aspects of the professional knowledge and comprehensive security sense, The operator should hold certificates to prove their ability and knowledge of effective, please make sure the welding input cable is disconnected with power before open the main case.

COMMON TROUBLE SHOOTING

FAULT	SOLUTION
Power light don't shine, fan don't work, machine don't work	1 check the power switch is on 2 the power is normal
when you weld, the output current is not stable or the output current is not controlled by the potentiometer	1 the quality of the potentiometer is poor, replace it. 2 the connecting is not well, need to examine.
Power light and fan is normal, But no welding output.	1, check the connection is well or not. 2, output end is cut-off or poor connection 3, over-heating light is on 3.1, bc over-heating, the machine is in the production, in this condition you should keep the power on. So that the cooling fan to maintain work when the light is extinguish, the machine can maintain work.
Holder is hot	Change the large size of the electrode holder
big splash	The connection of Output polarity is wrong, exchange the output line.