

MIG Series

Tapped Gas Shielded Welder

Operation Instructions

(Attention: please carefully read the operation instructions before use)

Please carefully read these operating instructions before using the welding machine. The operating procedures recommended in this operating instruction manual must be strictly followed in trail-operation.

I. Main Application and Suitable Scope

MIG series CO₂ Gas Shielded Semiautomatic Arc-Welding Machine (hereafter referred to as "Welding Machine") is applicable to CO₂ gas shielded welding of sheet metal, mediate plate and thick plate of various common carbon steel, high grade carbon steel and low alloy steel.

Multi-grade tap welding eliminator supply is adopted in MIG Series Welding Machine. High quality diode, which is simple in structure, convenient for maintenance, easy to operate, and reliable in operation, is used as module element. It is the most simple and reliable structure in CO₂ gas shielded welding and MIG welding equipments widely used in many countries at present; It can be used to omni-directional CO₂ gas shielded (or MIG) welding, which bears the merit of high production efficiency and quality, low cost, convenient for operation, no welding slag on open arc, high degrees of welding, minor zone of hot influence when welding, minor work piece distortion, beautiful shaping in the welding seam etc. comparing with electrode coating welding and submerged arc welding. It is warmly welcomed by our clients.

Superior static and dynamic characteristics in this series of welding machine ensures the power with satisfying welding adaptability; broad welding adjustment is suitable for various welding conditions. It is the ideal equipment for further popularizing the new technique of CO₂ gas shielded welding and can be matched for use with imported high quality welding torch.

The above-mentioned characteristics fully reflects our purpose of providing convenience for users, Especially for beginner to master CO₂ welding technique more quickly.

II. Suitable Working Condition and Environment for the Product

Please carefully read these operation instructions before installing and using the welding machine.

1. Welding machine must be well grounded and it must not be used with the enclosure open.
2. The welding position shall be covered with arc board so as to prevent others from being burned by the electric arc.
3. The operator must wear work clothes with long sleeves, wear weld cap, and leather gloves. The cuff and collarband shall also be well bundled.
4. Do not weld under the surrounding with inflammable, explosive articles or flammable gas.
5. There shall be ventilating and dust removal facilities near the welding position, especially in narrow space. But, the air shall not blow towards the weld zone directly.
6. During wire delivery, the torch mouth shall not face to human body, so that welding wire will not bring injure to persons in wire delivery.
7. The gas cylinder shall be stably and firmly laid to prevent the cylinder from dumping and injuring others
8. Do not allow fingers, hair, clothes etc. to approach rotary positions like the fan and wire feeding wheel etc.
9. The welding machine shall be maintained and overhauled regularly.
10. Working conditions

The welding machine shall be installed at the place with the environment temperature not exceeding 40 degrees Centigrade and relative humidity smaller than 90% (± 25); The installed place shall not have corrosive gas, moisture, steam chemical sediment, dust, mould, and other explosive and corrosive medium which seriously influence the insulation of welding machine; There shall be no serious vibration and toss in the installation place.

III. Specification and Technical Parameter

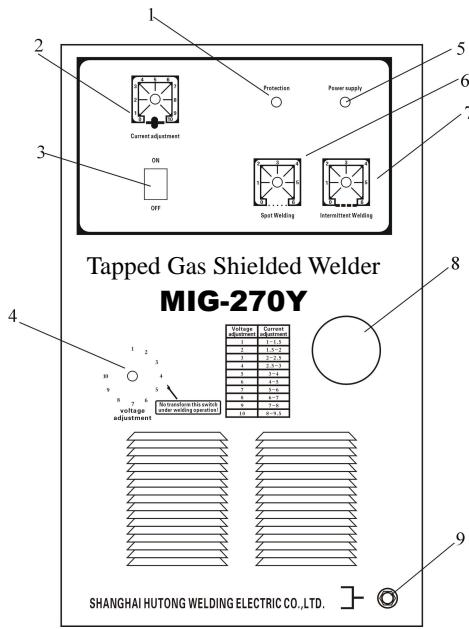
Model	MIG -210Y	MIG -250Y	MIG -270Y	MIG -350Y	MIG -400Y	MIG -500Y
Primary voltage(V)	380V/50Hz	380V/50Hz	380V/50Hz	380V/50Hz	380V/50Hz	380V/50Hz
Phase	3	3	3	3	3	3
Rated load endurance(kVA)	6.8	8.9	9.4	15.5	20	30
Secondary nonloaded voltage(V)	18.0V~30.0	18.0V~32.0	19.5V~34.5	21.5V~37	22V~43	22~52
Current Adjusting Range(A)	40~210	40~250	40~270	50~350	65~400	100~500
Wedling voltage(V)	16.5~24.0	16.5~26.5	17~28	17~31.5	17.3~34	17.3~44
Voltage adjusting stages	10	10	10	10	10	10
Rated duty cycle(%)	60%	60%	60%	60%	60%	60%
Rated welding current(A)	200A	250A	270A	350A	400A	500A
Weiht(kg)	70kg	95kg	95kg	110kg	125kg	165 kg
Structural configuration	Intergratde	Intergratde	Intergratde	Intergratde	Intergratde	Intergratde
Suitable welding wire(mm)	Φ 0.8/1.0	Φ 0.8/1.0	Φ 0.8/1.0/1.2	Φ 0.8/1.0/1.2	Φ 0.8/1.0/1.2	Φ 0.8/1.0/1.2

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Structural configuration	Separated	Separated	Separated	Separated	Separated	Separated
Suitable welding wire(mm)	Φ 0.8/1.0	Φ 0.8/1.0	Φ 0.8/1.0/1.2	Φ 0.8/1.0/1.2	Φ 0.8/1.0/1.2	Φ 0.8/1.0/1.2

Other parameters

Suitable diameter of the welding wire	0.8-1.6mm
Shape of welding torch	Goose neck style
Cooling of welding torch	Self-cooling
Hose for wire delivery	3 m
Speed of wire delivery	1-6 m/ min

IV. Panel Sketch



1. Protection indicator
2. current adjustment
3. Power switch
4. Voltage switch
5. Power supply indicator
6. Spot welding regulation
7. Intermittent regulation
8. Adapter of Welding Torch
9. Output Ports

V. Systematic Demonstrations

1. Installation and debugging

- ※ VA welding machine shall be installed at a steady and well-ventilated place. The sunlight shall be shielded when using outdoor. The forklift shall be used for its transportation so as to keep the welding machine upright and avoid inverting and inclining. The welding machine shall be grounded before access to electric wire netting: connect the screw on ground connection symbol of the welding machine and ground wire of electric wire netting. And then, connect the power cable of the welding machine to the electric wire netting (be careful that the adapter shall be firm and reliable).
- ※ If the welding machine is just accepted or has been left unused for a long time, the insulation resistance of the welding machine shall be inspected: the electric circuit related to the electric wire netting, the insulation resistance between the circuit shall be no less than $2-5M\Omega$; if the insulation resistance is lower than the above-mentioned value, it shall be dried. After the confirmation of normal welding machine, the welding torch, ground wire, wire feeding machine, barometer, gas cylinder etc. shall be well connected according to electric assembly drawing: well connect the CO₂ pressure reduction meter (namely, barometer) with the gas cylinder and well connect the air inlet of barometer and welding machine (wire feeding machine) by $\phi 8$ heatproof polyvinyl chloride hose; connect power supply of heater with the "heating" socket; connect the positive out pole of the welding machine with the wire feeding machine and negative pole with the work piece by the ground wire.
- ※ Inspect the performance of the welding machine after correctly installing machine and testing to be normal. Pull the wire delivery handle and loosen the wire-pressing wheel, and then switch on the torch to rotate the "voltage regulating" switch from small grade to higher grade (attention: the switch is prohibited from rotating during welding operation); the idle voltage shall vary from weak to strong; and then evenly adjust the "electric current regulation" knob to make sure that the rotation of wire feeding wheel shall increase at uniform velocity.

2. Operations

- 1) Check the correctness of connection between work piece and ground wire, welding torch, wire delivery, gas cylinder, barometer, gas pipe etc. If there are electric current grade of large (small) scale on the panel, then switch with small current shall be used under voltage grade of 5

- 2) Install the wire reel winded with welding wire to the axle of wire feeder, adjust the wire feeding wheel and contact tip according to the diameter of the welding wire, and deliver the welding wire into the wire delivery hose and well press the wire feeding wheel.
- 3) Open power of the welding machine and adjust the switch for “Voltage Regulation” to the required grade. The current shall be adjusted to the generally proper position (the accurate position is to be adjusted during welding); as to welding wire of 0.8-1.0mm, the speed of delivery shall be generally 3-6 meters / min.
- 4) Select the way of welding according to actual needs: as to the welding of continued slit, the knobs of “Spot Welding”, “Intermittent Welding” shall be revolved to the bottom; as to automatic short welding seam (operation stops after welding for a segment), open the “Intermittent Welding ”knob and adjust the welding time accordingly; as to automatic intermittent welding, open “Spot Welding”, “Intermittent Welding” knobs and regulate the corresponding welding time and welding cycle.
- 5) Open the valve of the gas valve, regulate the gas flow (generally at the scope of 3-15 liters/min),and check the air-tightness of the gas circuit; press the switch of the torch to see the whether wire delivery and gas supply is normal or not.
- 6) Hold the welding torch at the position of 9-12mm from the spray head and keep a angle of 10-20 degrees with welding seam with the torch. The welding seam can be aimed by the welding wire.
- 7) Press the switch of the welding torch, move it evenly after the electric arc is fired and adjust welding norm to match the welding according to actual condition, so that an exquisite welding seam is obtained. Loosen the welding torch and a welding circulation is finished.
- 8) Close the gas valve, and loosen the wire-pressing handle of the wire feeding machine after the completion of welding. Press the switch of the welding torch to release the gas remaining in the barometer and shut off the power of the welding machine and general power.

Notes:

- 1) Thee correct adjustment of welding norm is the key step to welding. The welding current can be adjusted according to the speed of wire delivery. As to the welding wire with the same specification, the higher the speed, the stronger the current will be.
- 2) When burning back occurs to the welding wire, regulate arc stopping and potentiometer. The position for arc stopping to regulate the potentiometer is located at the front panel of separated machine and mainboard center of the integrated machine

The standard reference data for welding low carbon steel by undergoing CO₂ gas shielded welding with H08Mn₂Si welding wire is listed below (as to detailed data, please refer to the table of welding parameters).

Diameter of Welding Wire (mm)	Board Thickness (mm)	Welding voltage (V)	Welding Current (A)
0.8	0.8-2	18-21	80-100
1.0	3-5	21-24	100-140
1.2	4-6	22-26	130-190

VI. Operational Attentions and Maintenance

1. The welding machine shall be operated in accordance with corresponding load duration factor.
2. The metal splashing within the spray head shall be removed timely during continuous operation.
3. Pay attention to the condition of the wire delivery hose. If it is blocked up or worn out by greasy dirt, the it shall be purged or replaced.

4. Replace the contact tube and spray head on timely so that the welding torch or welding machine is not damaged.
5. The greasy dirt or others on the wire feeding wheel and wire tail shall be timely cleaned. and the wire feeding wheel of which the V groove is seriously worn shall be timely replaced so as to prevent instable and slipping wire delivery.
6. The lubrication of the reducing gear box of the wire feeding machine shall be checked regularly and lubricating oil shall be added if necessary.
7. The insulation of various cable shall be checked regularly .If there is damage on insulation, it can only be used after the recovery of insulation to prevent short circuit or other accidents.
8. Do not knock the welding torch jam on the wire delivery hose. Do not place the welding torch on the work piece or on the ground in order to avoid accident.
9. The welding machine shall be kept clean. Clean the internal of the welding machine by using dry air with low pressure.
10. If the welding machine is not used for a long time, the welding wire within the wire delivery hose shall be pulled out or lubricating oil added to avoid the corrosion of welding wire.
11. The fan shall be checked whether the operation is normal or not before welding and after startup.

VII Points for Safe Operation

(I) Safety Requirements on Welding Environment of the Welder

1. The welding position shall be covered with arc board so as to prevent others from being burned by the electric arc.
2. The operator must wear work clothes with long sleeves, wear weld cap, and leather gloves. The cuff and collarband shall also be well bundled.
3. Do not weld under the surrounding with inflammable, explosive articles or flammable gas.
4. The gas cylinder shall be stably and firmly laid to prevent the cylinder from dumping and injuring others
5. The fingers, hair and clothes shall not approach the rotary part of the fan.

(II) Safety Requirements on Welding Machine

1. The enclosure of the welding machine shall be grounded during operation.
2. The welding machine shall not be posited to the surroundings with harmful and flammable .The machine body shall be shielded from moist, rain and insolation. It is better to place it under ventilating, dry environments with less dust.
3. The welding machine shall be maintained usually and the dust within the machine shall be removed.
4. The welding blowpipe shall connect with the output end "Welding Torch" of the welding torch and operation end connects the "work piece".
5. When welding, the flow of protection gas shall be appropriate. Generally, the thicker the welding wire, the stronger the gas flow .1 As to specific operations, it depends on welding experience.
6. The machine shall be not placed under environments with corrosive gas or other pernicious gas and inflammable and explosive gas.

VIII. Packing List

MIG Series Host Computer (including wire feeder)	One
C02 Welding Torch (goose neck style)	One
Ground Wire for Welding	One
Pliers for Ground Wire	One
Operating Instructions (including certificate of quality, sheet of guarantee)	One copy

MIG -210/250/270/350/400/500 Electric schematic diagram

