

INVERTER WELDER

MIG-140









WARNING!
To reduce risk of injury, User must
read and understand owner's
manual prior to use.





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1. Safety warning

During the welding process, there maybe certain security security risks to the users . learning to take necessary protective measures is very important . Details please refer to personnel safety protective guidelines, which is comply with the requirements of the manufacturer accident prevention.

	<p>Professional skills need to be trained, with which the users are capable to operate the equipment.</p> <ul style="list-style-type: none"> ● Wearing safety gear when welding, which is approved by the national safety supervision department ● The operator must be well trained, who has the “operation certificate of the metal welding and cutting work”! ● Avoid excessive work, take necessary rest.
	<p>Electric shock may result in serious injury or even death!</p> <ul style="list-style-type: none"> ● Please install grounding device according to the application standard. ● Don not contact live parts with bare skins, or when wearing wet clothing. ● Make sure you are insulated from ground and work-piece ● Before working, make sure your situation is safe.
	<p>Smoke may be harmful to health!</p> <ul style="list-style-type: none"> ● Keep safe distance with smoke, avoid directly breathing welding fumes. ● Please weld where there is ventilation or air circulated.
	<p>Arc light may damage your eyes or burn bare skins!</p> <ul style="list-style-type: none"> ● Wearing protective clothing like glasses, mask ,gloves, boots, etc .To protect eyes and skins from arc light. ● For bystanders as well.
	<p>Improper operation may cause fire or explosion.</p> <ul style="list-style-type: none"> ● Welding spark may lead to fire, please ensure there is no flammables nearby. ● Make sure there is fire extinguishing device in the neighborhood, and who is skilled to use it in working areas. ● Do not weld in sealed container ● Never use the machine for pipeline thawing
	<p>Thermal parts can cause serious burns</p> <ul style="list-style-type: none"> ● Do not touch the thermal parts. ● In continuous using, please always keep to have a cooling time.

	<p>Excessive noise may be harmful to hearing.</p> <ul style="list-style-type: none"> ● Please protect your ears, use ear shield or earplugs if necessary. ● For bystanders as well.
	<p>Magnetic field is effective to heart pacemaker.</p> <ul style="list-style-type: none"> ● Before consulting a physician, users with pacemaker must keep far away from the welding areas.
	<p>Moving parts may cause injury.</p> <ul style="list-style-type: none"> ● Keep safe distance to moving parts such as the fan. ● All kinds of doors, panel, cover, baffle plate and protective device should be closed and put to the right place.
	<p>Ask for professional help with machine fault if needed.</p> <ul style="list-style-type: none"> ● Normal faults please refer to the manual. ● If you are unable to solve the problem on your own, please seek for professional help from the supplier or manufacturer.

Remark: the welder must be placed horizontally, laying place slope not exceeding 15°

2. Machine description

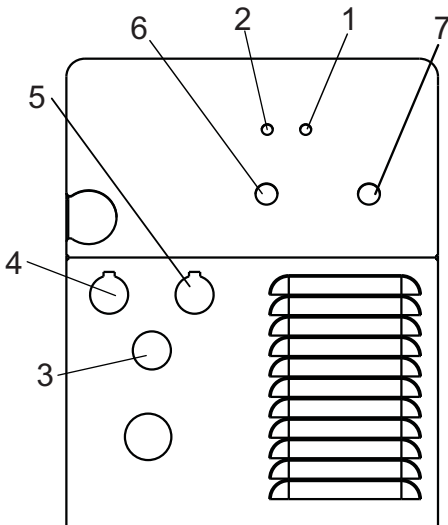
The MIG-140 is a new inverter-based portable MIG welding machine . The MIG function allows you to weld with both Gas-less applications. Easy step-less adjustment of voltage and wire feed make for easy setting of welding parameters giving excellent welding results. Wire Inch gives easy feeding of the wire during set up without gas wastage and the Burn Back adjustment leaves the wire out ready for the next weld.

- Working frequency is beyond the audio range, which almost eliminates noise pollution.
- Industry leading control system
- Advanced control technology meets the welding applications and provides excellent welding performance.
- It can be used with a wide range of welding electrodes.
- Easy arc starting, less spatter, stable current and good weld bead shaping.
- Modern high tech design
- Streamline design of front and rear panels.
- Front and rear panels made of high-intensity plastics
- Excellent insulating property.

3. Technical specifications

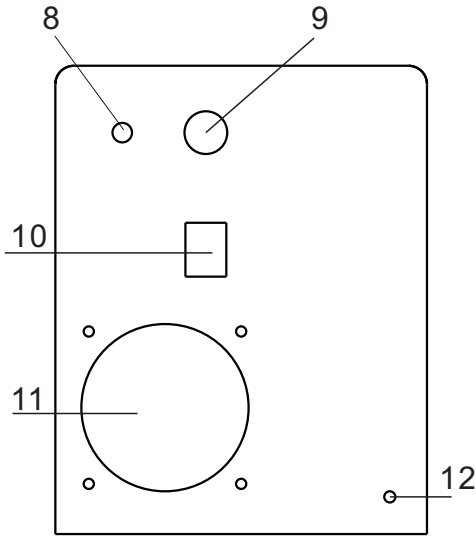
Model	MIG-140	
Voltage(V)	AC 110V \pm 10% 50/60Hz	AC 220V \pm 10% 50/60Hz
Max input current(A)	120	140
Rated output(A/V)	120/20	140/21
Welding current range(A)	50-120	50-140
No-load voltage(V)	55	55
Rated load duty cycle	60%	60%
Efficiency(%)	85	85
Power factor	0.73	0.73
Protection Class	IP21S	IP21S
Insulation Class	F	F

4. Function instructions



(Front Panel)

1. Overheated lamp
2. Power Light
3. Convert connect
4. "-" Output terminal
5. "+" Output terminal
6. MIG voltage regulation
7. Wire feed speed adjustment



- 8. Gas in
- 9. Power cable
- 10. Power switch
- 11. Fan
- 12. Ground screw

(Rear panel)

5. Installation and operation

Note: - Please install the machine strictly according to the following steps.

- Turn off the power supply switch before any electric connection operation.
- The protection class of this machine is IP21S, so avoid using it in rain.

5.1 Connection of input cable

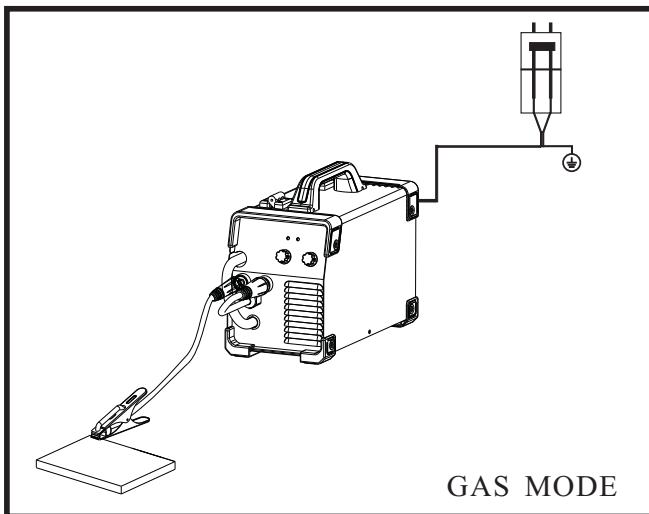
- 1) A primary power supply cable is available for this welding machine. Connect the power supply cable to the rated input power. (Ground connection is needed for safety purpose.)
- 2) The primary cable should be tightly connected to the correct socket to avoid oxidization.
- 3) Check whether the voltage value varies in acceptable range with a multi-meter.

GAS MODE

- 1) Connect the convert cable to the Positive socket and tighten it.
- 2) Connect the earth cable plug into the Negative socket and tighten it.

GASLESS MODE

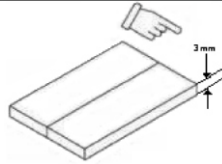
- 1) Connect the convert cable to the Negative socket and tighten it.
- 2) Connect the earth cable plug into the Positive socket and tighten it.
- 3) Fit the correct size Knurled drive roller for Gas Less Flux Core wire.
- 4) Place the Wire Spool onto the Spool Holder - Note: the spool retaining nut is Left Hand thread. Snip the wire from the spool being sure to hold the wire to prevent rapid uncoiling. Feed the wire into the wirefeeder inlet guide tube through to the drive roller.



6. Typical MIG process settings

NOTE These settings are guidelines only. Material and wire type, joint design, setup position, shielding gas, etc. affect settings. Test welds to be sure they comply with specifications.

Material thickness determines weld parameters



Convert material thickness to Amperage (A)
 (0.024mm = 1 Ampere)
 3mm = 125 A

Select wire size



Wire size	Amperage range	Gas L/min
0.8mm	40 – 154A	10
0.9mm	50 – 180A	10-15
1.0mm	60 – 270A	15-25

Wire size: Recommended Wire Speed (Approx.)

Select wire size (Amperage)	125A based on 3mm material thickness	M/pm meters per minute
0.6mm	88mm per ampere	11m/min
0.8mm	50mm per ampere	6.3m/min
1.0mm	40mm per ampere	5.0m/min

Select Voltage

Low voltage: wire stubs into work
 High voltage: arc is unstable (spatter)
 Set voltage midway between high/low voltage

Wire Speed (amperage) controls weld penetration
 (Wire speed = burn-off rate)

Voltage controls height and width of weld bead

Parameter for Lap Welding

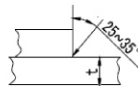


Plate thickness t (mm)	Wire φ (mm)	Welding current (A)	Welding voltage (V)	Welding speed (cm/min)	Gas volume (L/min)
0.8	0.8-0.9	60-70	16-17	40-45	10-15
1.2	1.0	80-100	18-19	45-55	10-15
1.6	1.0-1.2	100-120	18-20	45-55	10-15
2.0	1.0-1.2	100-130	18-20	45-55	15-20
2.3	1.0-1.2	120-140	19-21	45-50	15-20
3.2	1.0-1.2	130-160	19-22	45-50	15-20
4.5	1.2	150-200	21-24	40-45	15-20

Parameter for fillet welding in the vertical position



Plate thickness t (mm)	Gap size l (mm)	Wire φ (mm)	Welding current (A)	Welding voltage (V)	Wire speed (cm/min)	Gas volume (L/min)
1.2	2.5-3.0	1.0	70-100	18-19	50-60	10-15
1.6	2.5-3.0	1.0-1.2	90-120	18-20	50-60	10-15
2.0	3.0-3.5	1.0-1.2	100-130	19-20	50-60	10-20
2.3	3.0-3.5	1.0-1.2	120-140	19-21	50-60	10-20
3.2	3.0-4.0	1.0-1.2	130-170	22-22	45-55	10-20
4.5	4.0-4.5	1.2	200-250	23-26	45-55	10-20

7.1 Working environment

- (1) The product shall be used under a certain dry environment, humidity normally better under 90%.
- (2) Environment temperature -10°C to 40°C is best for our products
- (3) Avoid welding under direct sunshine or rain, avoid water getting into the inside of machine
- (4) Avoid working in dusty area or areas with corrosive gases
- (5) The welder shall be placed horizontally, laying place slope not exceeding 15°

7.2 Safety operation

Our products already have overload, over-current and overheat protection circuit, when input voltage, input current or machine inside temperature exceeds the system default standard, the welder will stop working apologetically. However overusing especially with high output voltage, will fasten the damage of welders, please pay more attention to the listed aspects.

- (1) Ventilation must be good!

During operation, there is huge current passing through the welder, natural wind is not strong enough to cool down the machines, which has to be done with a powerful blowing fan fixed in the machine. The operator must make sure the fan on the back of welder not covered by any obstacle, the welder must be kept with a distance at least 0.3m to the items nearby. Using environment must be kept under well Ventilated , which helps the welder work better and extend product is using life.

- (2) Avoid overloading!

The operators must make sure the welder works under permitted duty cycle, which can be referred to in the data board on the machine.

Welding current shall be controlled under max overloading current allowed. Otherwise the welder is working life will reduce, even burns down.

(3) Output voltage must not be too high!

Input power voltage can be seen in the data board on the machine. within permitted range , the voltage compensating circuit will help keep welding current stable . If input voltage over permitted , the machine will get broken easily , the operators must be aware of this and make prevention against this.

(4) The welder must be grounding!

There is a grounding screw on the back of machine with a grounding sign beside . Before using, make sure the welder is grounded well, to prevent the operators getting short.

(5) Measures after duty cycle protection!

When using over max duty cycle, inside circuit overheating causes the temperature switch to be open-circuit, which finally prevent the products from working on. This can be judged from the lighting yellow led on face panel . Under this circumstance, no need to pull off the plug from the power, keep power on to let the fan cool down the machine. With the yellow led turning off, welding can be continued.

(6) Movement

When moving the welder, be careful not to be hurt by the machine. When lifting the welder with other equipment like forklift , do not put yourself under it, to avoid being hit if the welder drops .Welding current shall be controlled under max overloading current allowed. Otherwise the welder is working life will reduce, even burns down.

8. Maintenance



WARNING!

- This machine is mainly used in the welding industry. It will produce Electric & Magnetic fields , so the operator should insure proper protection/screening in used
- Earth leakage-circuit breaker should be used with this machine!!!
- During welding, DO NOT pull out or insert any plugs or cables, it can lead to life-threatening danger and cause damage to the machine.
- Before connecting cables make sure the power is off.(The correct way is to connect the cables to the machine first, and make sure they are Firmly tightened and then connect the power plug to the power source .)
- Before maintenance and checking , power must be turned off ,
- Before opening the cover disconnect the machine from electricity!

- 1). Remove dust with dry, clean compressed air regularly, if the welding machine is operated in an area where the air is polluted with smoke and dust , the machine needs to be cleaned regularly , remove dust monthly
- 2). Pressure of compressed air must not be more than 5 bars in order to prevent damage to small components inside the machine.
- 3). Check inside the welding machine regularly and make sure the output Terminals are connected tightly and connectors are not damaged. If burnt, loose or damaged please tighten or replace if necessary. Between of moving parts.

- 4). Avoid water and steam entering into the machine, if the welding machine Does get wet please dry inside the machine and check the insulation of machine.
- 5). If the welding machine will not be operated for long periods it should be put into a box or covered and stored in a cool dry area.

9. Troubleshooting And Fault Finding



WARNING!

Experimentation and careless maintenance may lead to more problems to the Machine. This will make formal diagnostic and repair more difficult. When the machine is open there may be exposed connections containing life-threatening voltages . Any direct or indirect touch will cause electric shock, and severe electric shock will lead to death.

Notes: only attempt to repair this machine if you have knowledge and understanding of electronic components and the dangers of electricity and components holding a charge of high voltage electricity. Before maintenance contact us for authorization is suggested.

**DO NOT REPAIR OR MODIFY MACHINE IF
STILL UNDER WARRANTY**



Malfunction symptom	Causes and Solutions
Turn on the machine, the power LED is off, the fan doesn't work, and no welding output.	Check if the power switch is closed. No input power.
The electrode holder becomes very hot.	The rated current of the electrode holder is smaller than its actual working current. Replace it with a higher rated current capacity.
Excessive spatter in MMA welding.	The output polarity connection is incorrect. Exchange the polarity.
Symptom Cause Solution Difficult to ignite the arc	Increase the arc ignition current or prolong the arc starting time.
The electrode holder becomes very hot	Replace it with a higher rated current holder.
The fan does not work or it works abnormally.	<ol style="list-style-type: none"> 1. Reconnect the mains supply cable. 2. Solve the phase failure problem. 3. Welding can be carried out after the mains voltage recovers.
Turn on the machine, the fan works, but the output current is unstable and can't be controlled by potentiometer when welding.	The current potentiometer fails. Replace it. Check if any loose contact exists inside the machine. If any, reconnect.