Ronix®
Premium Quality

DC ARC WELDING INVERTER

RH-4604

www-ronixtools-com

TECHNICAL DATA

Model	RH-4604
Input voltage	220V±15%
No-load voltage	65V
Out-put current range	30~200A
Rated out-put voltage	25.6V
Max input power capacity	9.5KVA
Max in-put current	43A
Power Factor	0.75
Duty cycle (25°C)	60%
Insulation class	F
Protection	IP21S
Electrode Diameter	5.0 - 1.6
Accessories	Earth clamp+1.2m cable, Welding clamp+1.8m cable, Scotch brush+ Hammer, Mask

SAFETY

Welding is dangerous, and may cause damage to you and others, so take good protection when welding. For details, please refer to the operator safety guidelines in conformity with the accident prevention requirements of the manufacturer.

 Professional training is needed before operating the machine
Use labor protection welding supplies authorized by national security supervision department
The operator must be qualified personnel with a valid «metal welding (OFC) operations» operation certificate
Cut off power before maintenance or repair.

 Electric shock-may lead to serious injury or even death

Install earth device according to the application criteria

Never touch the machine parts with bare skin or in wet gloves when the machine is still operating

Make sure that you are insulated from the ground and work piece

Make sure that your working position is safe

 Smoke & Gas-may be harmful to health

Keep your head away from smoke and gas to avoid inhalation of exhaust gas from welding.

Keep the working environment properly ventilated with exhaust or ventilation equipment when welding.

 Arc radiation-may damage eyes or burn skin

Wear suitable welding masks and protective clothing to protect your eyes and bod.

Use suitable masks or screens to protect spectators from harm.

 Improper operation may cause fire or explosion

Welding sparks may result in a fire, so please make sure there are no combustible materials nearby and pay attention to fire hazard.

Have a fire extinguisher nearby, and have a trained person to use it.

Airtight container welding is forbidden.

Do not use these machines for pipe thawing.

 Hot work piece may cause severe scalding

Do not contact hot work piece with bare hands.

Cooling is needed during continuous use of the welding torch.

 Magnetic fields affect cardiac pacemaker

Pacemaker users should be away from the welding spot before medical consultation.

 Moving parts may lead to personal injury

Keep yourself away from moving parts such as fan.

All doors, panels, covers and other protective devices should be closed during operation.

 Please seek professional help when encountering machine failure

Consult the relevant contents of this manual if you encounter any difficulties in installation and operation.

Contact the service center of your supplier to seek professional help if you still cannot fully understand after reading the manual or still cannot solve the problem.

GENERAL DESCRIPTION

Advanced IGBT inverter technology

High inverter frequency greatly reduces the volume and weight of the welder.

Great reduction in magnetic and resistance loss obviously enhances the welding efficiency and energy saving effect.

Switching frequency is beyond audio range, which almost eliminates noise pollution.

LEADING CONTROL MODE

Advanced control technology meets various welding applications and greatly improves the welding performance.

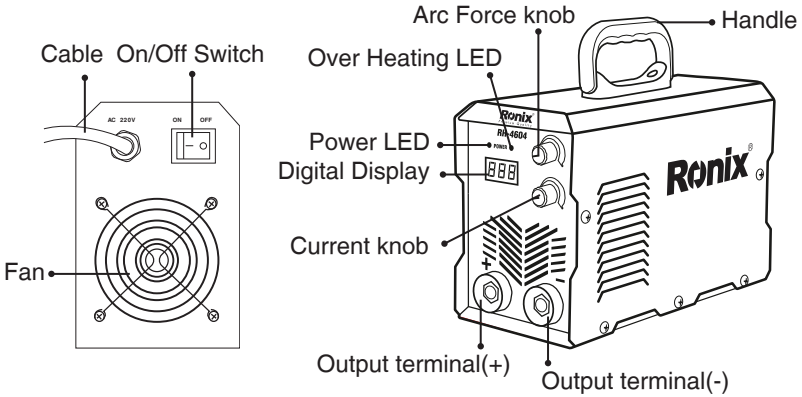
It can be widely used in acid and basic electrode welding.

Easy arc starting, less spatter, stable current and good shaping.

FEATURES OF ARC SERIES

Efficiency, energy saving, portable, stable arc, high no-load voltage, and with good compensation of arc force, are able to meet various welding requirements in field work.

OPERATION CONTROL AND DESCRIPTION



- **ACCESSORIES**

1.8 m welding holder
1.2m earth clamp
Welding Mask
Steel brush

INSTALLATION, DEBUGGING AND OPERATION

NOTE:

Please install the machine strictly according to the following steps.
Turn off the power supply switch before any electric connection operation.

5.1 INSTALLATION METHOD

1) A primary power supply cable is available for this welding machine. Connect the power supply cable to the rated input power.
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

4) Insert the cable plug with electrode holder into the«+» socket on the front panel of the welding machine, and tighten it clockwise
5) Insert the cable plug with work clamp into the socket on the front panel of the welding machine, and tighten it clockwise
6) Ground connection is needed for safety purpose.

The connection as mentioned above in 6.1(4) and 6.1(5)is DCEP connection. Operator can choose DCEN connection according to work piece and electrode application requirement. Generally, DCEP connection is recommended for basic electrode, while there is no special requirement for acid electrode.

5.2 OPERATION METHOD

1) After being installed according to the above method, and the power switch being switched on, the machine is started with the power LED on and the fan working
2) Pay attention to the polarity when connecting. Phenomena such as unstable arc, spatter, and electrode sticking could happen if improper mode is selected. Exchange the polarity if necessary
3) Select cable with larger cross-section to reduce the voltage drop if the secondary cables (welding cable and earth cable) are long
4) Preset the welding current according to the type and size of the electrode, clip the electrode and then welding can be carried out by short circuit arc starting. For welding parameters, please refer to 6.3

5.3 WELDING PARAMETERS TABLE (FOR REFERENCE ONLY)

Electrode dia. (mm)	Recommended welding current (A)	Recommended welding voltage (V)
1.0	20~60	20.8~22.4
1.6	44~84	21.76~23.36
2.0	60~100	22.4~24.0
2.5	80~120	23.2~24.8
3.2	108~148	23.32~24.92
4.0	140~180	24.6~27.2

⚠ NOTE:
This table is suitable for mild steel welding. For other materials, consult related materials and welding process for reference.

WORKING ENVIRONMENT

⚠ CAUTION:
1) Welding should be carried out in dry environment with humidity of 90% or less.
2) The temperature of the working environment should be between -10c and 40c.
3) Avoid welding in the open air unless sheltered from sunlight and rain. Keep it dry at all times and do not place it on wet ground or in puddles.
4) Avoid welding in dusty area or environment with corrosive chemical gas.
5) Gas shielded arc welding should be operated in environment without strong airflow.

SAFETY TIPS

Over-current/over-voltage/over-heating protection circuit is installed in this machine. When the network voltage, output current or inner temperature exceeds the set standard, the machine will stop automatically. However, excessive use (e.g. too high voltage) of machine will lead to welder damage. Therefore, please note:
2.1 Ventilation
This welder can create powerful cutting current that has strict cooling requirements that cannot be met with natural ventilation. Therefore the internal fan is very important in enabling the machine to work steadily with effective cooling. The operator should make sure that the louvers be uncovered and unblocked. The minimum distance between the machine and nearby objects should be 30cm. Good ventilation is of critical importance to the normal performance and lifespan of the machine

2.2 Welding operation is forbidden while the machine is overload. Remember to observe the max load current at any moment (refer to the corresponding duty cycle). Make sure that the welding current should not exceed the max load current. Overload could obviously shorten the machines lifespan, or even damage the machine

2.3 Over-voltage is forbidden

Regarding the power supply voltage range of the machine, please refer to «Main Parameters» table. This machine is of automatic voltage compensation, which enables the maintaining of the voltage range within the given range. In case that the input voltage exceeds the stipulated value, it would possibly damage the components of the machine

2.4 An earth terminal is available for the machine. Connect it with an earth cable (section>=5mm2) to avoid the static and electric shock

2.5 A sudden halt may occur with the red LED on the front panel on while the machine is of over-load status. Under this circumstance, it is unnecessary to restart the machine. Keep the built-in fan working to lower the temperature inside the machine. Cutting can be continued after the inner temperature falls into the standard range and the red LED is off.

MAINTENANCE

The following operation requires sufficient professional knowledge on electric aspect and comprehensive safety knowledge. Operators should be holders of valid qualification certificates which can prove their skills and knowledge. Make sure the input cable of the machine is cut off from the electricity utility before uncovering the welding machine

1. Check periodically whether inner circuit connection is in good condition (esp. Plugs). Tighten the loose connection. If there is oxidization, remove it with sandpaper and then reconnect

2. Keep hands, hair and tools away from the moving parts such as the fan to avoid personal injury or machine damage

3. Clean the dust periodically with dry and clean compressed air. If welding environment with heavy smoke and pollution, the machine

should be cleaned daily. The pressure of compressed air should be at a proper level in order to avoid the small parts inside the machine being damaged.
4. Avoid rain, water and vapor infiltrating the machine. If there is, dry it and check the insulation of the equipment (including that between the connections and that between the connection and the enclosure). Only when there are no abnormal phenomena anymore, can the machine be used.
5. Check periodically whether the insulation cover of all cables is in good condition. If there is any dilapidation, rewrap it or replace it.
6. Put the machine into the original packing in dry location if it is not to be used for a long time.

TROUBLE SHOOTING

The following operation requires professional knowledge on electric aspect and comprehensive safety knowledge. Operators should be holders of valid qualification certificates which can prove their skills and knowledge. Make sure the input cable of the machine is cut off from the electricity utility before uncovering the welding machine.

▪COMMON MALFUNCTION ANALYSIS AND SOLUTION:

Malfunction Phenomena	Cause and Solution
Turn on the machine, the power LED is off, the fan doesn›t work, and no welding output	Check if the power is closed No input power

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
Turn on the machine, the power LED is on, the fan work, but no welding output.	Check if any loose contact exists inside the machine. Open circuit or loose contact occurs at the joint of output terminal. The overheating LED is on. The machine is under over-heating protection status. It can recover automatically after the welding machine is cooled. Check if the thermal switch is ok. Replace it if damaged.
Turn electrode holder becomes very hot.	The rated current of the electrode holder is smaller than its actual working current. Replace it with a bigger rated current.
Excessive spatter in MMA welding	The output polarity connection incorrect. Exchange the polarity.

Ronix
Premium Quality
RH-4604
POWER
Ronix

Ronix®
Premium Quality

www-ronixtools-com