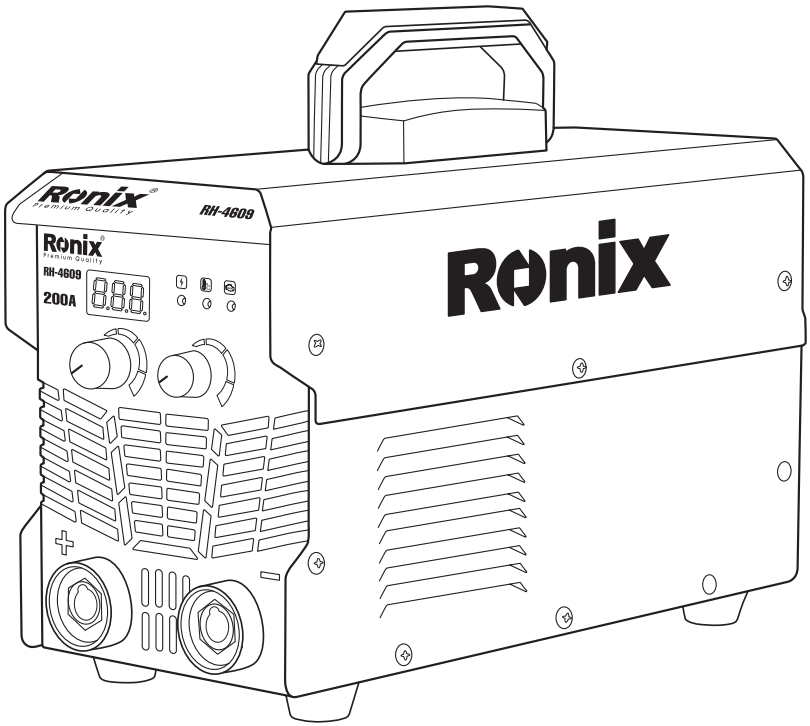
Ronix®
Premium Quality

DC ARC WELDING INVERTER

RH-4609



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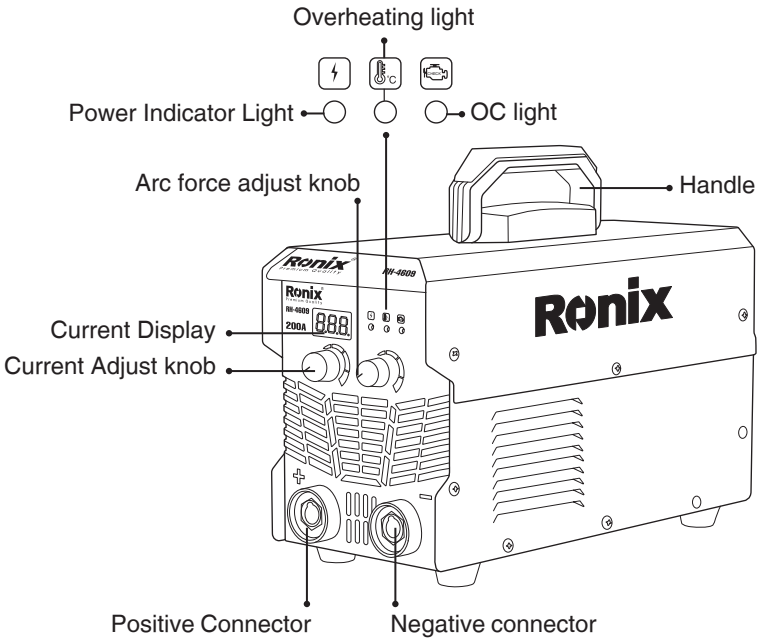
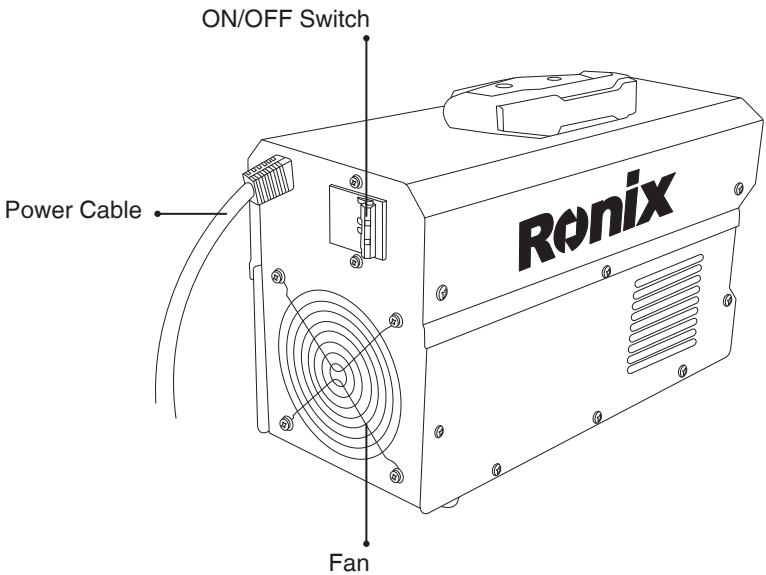
TECHNICAL SPECIFICATION

Model	**RH-4609**
Input Voltage	170V-250V
No Load Voltage	35-50V
Output Current Range	20-200A
Rated Out-Put Voltage	20.8-28V
Max Input Power Capacity	9.2KVA
Max Input Current	41A
Power Factor	0.73
Duty Cycle (25°C)	100%
Insulation Class	F
Protection	IP21S
Electrode Diameter	1.6 - 5.0mm
Accessories	3M×20mm CCA cable with 300A holder, 2M×20mm CCA cable with 300A earth clamp, mask, Brush, Strap

PARTLIST


Overheating light
Power Indicator Light
OC light
Arc force adjust knob
Handle
Current Display
Current Adjust knob
Positive Connector
Negative connector


ON/OFF Switch
Power Cable
Fan

GENERAL POWER TOOL SAFETY WARNINGS

⚠ WARNING!

- Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and or serious injury.
- Save all warnings and instructions for future reference.
- The term “power tool” in the warnings refers to your mains operated (corded) power tools or battery operated (Cordless) Power tools.

▪WORK AREA SAFETY

- Keep work area clean and well lit. Cluttered or dark areas invite accidents.
- Don’t operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. Power tools create sparks which may ignite the dust or fumes.
- Keep children and bystanders away while operating a power tool. Distractions can cause you to lose control.

▪ELECTRIC SAFETY

- Power tool plugs must match the outlet. Never modify the plug in any way. Don’t use any adaptor plugs with earthed (grounded) power tools. Unmodified plugs and matching outlets will reduce risk of electric shock.
- Avoid body contact with earthed or grounded surfaces such as pipe, radiators, ranges and refrigerators. There is an increased risk of electric shock if your body is earthed or grounded.
- Don’t expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.
- Don’t abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts. Damaged or entangled cords increased the risk of electric shock.

- When operating a power tool outdoors, use an extension cord suitable for outdoor use. Using a cord suitable for outdoor use will reduce the risk of electric shock.
- If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply. Use of an RCD reduces the risk of electric shock.
- Use of power supply via a RCD with a rated residual current of 30mA or less is always recommended.

▪PERSONAL SAFETY

- Stay alert, watch what you are doing and use common sense when operating a power tool. Don't use a power tool while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating power tools may result in serious personal injury.
- Use personal protective equipment. Always wear eye protection. Protective equipment such as dust mask, non skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
- Prevent starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool. Carrying power tools with your finger on the switch or energizing power tools that have the switch on invites accidents.
- Remove any adjusting key or wrench before turning the power tool on. A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
- Don't overreach. Keep proper footing and balance at all times. This enables better control of the power tool in unexpected situations.
- Dress properly. Don't wear loose clothing or jewelry. Keep your hair, clothing, and gloves away from moving parts. Loose cloths, jewelry or long hair can be caught in moving parts.
- If devices are provided for connection of dust extraction and collection facilities, ensure these are connected and properly

used. Use of dust collection can reduce dust related hazards.

▪POWER TOOL USE AND CARE

- Don't force the power tool. Use the correct power tool for your application. The correct power tool will do the job better and safer at the rate for which it was designed.
- Don't use the power tool if the switch doesn't turn it on and off. Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools. Such preventive safety measures reduce the risk of starting the power tool accidentally.
- Store idle power tools out of the reach of children and don't allow persons unfamiliar with power tool or these instructions to operate the power tool. Power tools are dangerous in the hand s of untrained users.
- Maintain power tools. Check for misalignment or binding of moving parts, breakage o parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use. Many accidents are caused by poorly maintained power tools.
- Keep cutting tools sharp and clean. Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
- Use the power tool, accessories and tool bits etc. in accordance with the instruction, taking into account the working conditions and the work to be performed. Use of the power tool for operations different from those intended could result in a hazardous situation.

▪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 the 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 workpiece.
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 body. Use suitable masks or screens to protect spectators from harm.

 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 hazards.

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.
- The hot workpiece 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 a medical consultation.

 Moving parts may lead to personal injury Keep yourself away from moving parts such as the fan.
All doors, panels, covers, and 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.

SERVICE

- Have your power tool serviced by qualified repair person using only identical replacement parts. This will ensure that the safety of power tool is maintained.
- Follow instruction for lubricating and changing accessories.

⚠ 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.

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.

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

B) 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.

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
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 -100°c and 40°c.

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 areas or environments with corrosive chemical gas.

5- Gas shielded arc welding should be operated in an 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 the

machine will lead to welder damage Therefore, please note:

▪VENTILATION

This welder can create a 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.

- Welding operation is forbidden while the machine is overloaded.

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. An overload could obviously shorten the machines lifespan, or even damage the machine.

- Over voltage is forbiddenRegarding the power supply voltage range of the machine, please refer to the«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.
- An earth terminal is available for the machine. Connect it with an earth cable (section>=5mm^2) to avoid the static and electric shock.
- 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 of the 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 the 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 the welding environment is with heavy smoke and pollution, the machine should be cleaned daily. The pressure of compressed air should be at a proper level to avoid damaging the small parts inside the machine.

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 a dry location if it is not to be used for a long time.

▪TROUBLESHOOTING

The following operation requires professional knowledge of the electric aspects 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.

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COMMON MALFUNCTION ANALYSIS AND SOLUTION

MALFUNCTION PHENOMENA	CAUSE AND SOLUTION
Turn on the machine, the power LED is off, the fan does not 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.
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 the 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 is incorrect. Exchange the polarity.

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