

# CLARKWELD®

## weld



## NO GAS INVERTER MIG WELDER

MODEL NO: IMIG100NG

PART NO: 6015610

## OPERATION & MAINTENANCE INSTRUCTIONS



ORIGINAL INSTRUCTIONS

GC02/22

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## **INTRODUCTION**

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Thank you for purchasing this CLARKE Welder. The IMIG100NG inverter welder is for light duty manual arc welding only. It has been designed specifically for continuous welding of carbon or mild steels up to 4mm without protective gas using appropriate 0.9mm flux cored electrode wire. The welder is designed for domestic use only and not intended for commercial or trade use.

Before attempting to operate the machine, it is essential that you read this manual thoroughly and carefully follow all instructions given. In doing so you will ensure the safety of yourself and that of others around you, and you can also look forward to the welder giving you long and satisfactory service.

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## **MIG WELDING PRINCIPLES**

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MIG (Metal Inert Gas) welding allows you to fuse together two similar metals without altering the properties of the metal.

A consumable wire electrode is continuously fed through the welding torch that is fitted with a concentric gas nozzle. The wire is connected to a high voltage supply which creates an electric arc between the electrode (the wire) and the workpiece. The arc is used to create the required heat to turn the metal into a molten state. The wire is used as both the electrode and as a filler.

When using a gasless welder the shielding gas is created from the flux within the welding wire.

When using the welder outside, you may need to erect a wind break.

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## **GUARANTEE**

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This CLARKE product is guaranteed against faulty manufacture for a period of 12 months from the date of purchase. Please keep your receipt as proof of purchase.

This guarantee is invalid if the product is found to have been abused or tampered with in any way, or not used for the purpose for which it was intended.

Faulty goods should be returned to their place of purchase, no product can be returned to us without prior permission.

This guarantee does not effect your statutory rights.

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# SAFETY PRECAUTIONS FOR ALL TYPES OF WELDING

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**WARNING: AS WITH ALL MACHINERY, THERE ARE CERTAIN HAZARDS INVOLVED WITH THEIR OPERATION AND USE. EXERCISING RESPECT AND CAUTION WILL CONSIDERABLY LESSEN THE RISK OF PERSONAL INJURY. HOWEVER, IF NORMAL SAFETY PRECAUTIONS ARE OVERLOOKED, OR IGNORED, PERSONAL INJURY TO THE OPERATOR MAY RESULT.**

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**FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY.**

## GENERAL PRECAUTIONS

### A) BURN PREVENTION

Wear protective clothing - gauntlet gloves designed for use in welding, apron, and protective shoes. Button shirt collars and pocket flaps and wear cuffless trousers to avoid entry of sparks and slag. Wear a helmet with safety goggles or glasses with side shields underneath, appropriate filter lenses or plates (protected by clear glass). This is a **MUST** for welding (and chipping) to protect the eyes from radiant energy and spatter. Replace the cover glass when broken, pitted, or spattered. Avoid oily or greasy clothing. A spark may ignite them. Hot metal should never be handled without gloves. First aid facilities and a qualified first aid person should be available unless medical facilities are close by for immediate treatment of flash burns of the eyes and skin burns. Ear plugs should be worn when working overhead or in a confined space. A hard hat should be worn when others work overhead. Flammable hair preparations should not be used by persons intending to weld or cut.

**NOTE:** ALL protective wear including masks & head shields **MUST** comply with PPE Directive 89/686/EEC

### B) TOXIC FUME PREVENTION

Severe discomfort, illness or death can result from fumes, vapours, heat, or oxygen enrichment or depletion that welding (or cutting) may produce. Prevent them with adequate ventilation. **NEVER** ventilate with oxygen. Lead-, cadmium-, zinc-, mercury- and beryllium-, bearing materials, when welded (or cut) may produce harmful concentrations of toxic fumes. Adequate local exhaust ventilation must be used, or each person in the area as well as the operator must wear an air-supplied respirator. For beryllium, both must be used. Metals coated with or containing materials that emit toxic fumes should not be heated unless coating is removed from the work surface, the area is well ventilated, or the operator wears an air-supplied respirator. Work in a confined space only while it is being force ventilated and, if necessary, while wearing an air-supplied respirator. Vapours from chlorinated solvents can be decomposed by the heat of the arc (or flame) to form PHOSGENE, a highly toxic gas, and other lung and eye irritating products. The ultraviolet (radiant) energy of the arc can also decompose trichloroethylene and perchloro-

ethylene vapours to form phosgene. DO NOT WELD or cut where solvent vapours can be drawn into the welding or cutting atmosphere or where the radiant energy can penetrate to atmospheres containing even minute amounts of trichloroethylene or perchloroethylene.

### **C) FIRE AND EXPLOSION PREVENTION**

Causes of fire and explosion are:

1. Combustibles reached by the arc, flame, flying sparks, hot slag or heated material;
2. Misuse of compressed gases and cylinders.
3. Short circuits.

BE AWARE that flying sparks or falling slag can pass through cracks, along pipes, through windows or doors, and through wall or floor openings, out of sight of the goggled operator.

To prevent fires and explosion: keep equipment clean and operable, free of oil, grease, and (in electrical parts) of metallic particles that can cause short circuits. If combustibles are in the area, DO NOT weld. Move the work if practicable, to an area free of combustibles.

Avoid working in paint spray rooms, dip tanks, storage areas, ventilators. If the work cannot be moved, move combustibles away from sparks and heat; or protect against ignition with suitable fire- resistant covers or shields.

Walls, ceilings, and floor near work should be protected by heat resistant covers or shields. Fire watcher must be standing by with suitable fire extinguishing equipment during and for some time after welding or cutting if:

1. Appreciable combustibles (including building construction) are within 10m.
2. Appreciable combustibles are further than 10m, but can be ignited by sparks.
3. Openings (concealed or visible) in floors or walls can expose combustibles to sparks.
4. Combustibles adjacent to walls, ceilings, roofs or metal partitions can be ignited by radiant or conducted heat.

After work, check that area is free of sparks, glowing embers and flames. An empty container that held combustibles or that can produce flammable or toxic vapours when heated, must never be welded on or cut, unless the container has first been cleaned. This includes a thorough steam or caustic cleaning (or a solvent or water washing, depending on the combustible's solubility) followed by purging and inerting with nitrogen or carbon dioxide, and using protective equipment.

Water filling just below the working level may substitute for inerting.

A container with unknown contents should be cleaned (see paragraph above). Do NOT depend on sense of smell or sight to determine if it is safe to weld or cut. Hollow castings or containers must be vented before welding or cutting as they can explode.

In explosive atmospheres, never weld or cut where the air may contain flammable dust, gas, or liquid vapours.

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## **ELECTRIC ARC (MIG, TIG) WELDING**

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Comply with precautions in above and this section. Arc welding, properly done, is a safe process but a careless operator invites trouble. The equipment carries high currents at significant voltages. The arc is very bright and hot. Sparks fly, fumes rise, ultraviolet and infrared energy radiates and work pieces are hot. The wise operator avoids unnecessary risks and protects himself and others from accidents.

### **BURN PROTECTION**

The welding arc is intense and visibly bright. It's radiation can damage eyes, penetrate lightweight clothing, reflect from light coloured surfaces and burn the skin and eyes. Skin burns resemble acute sunburn, those from gas - shielded arcs are more severe and painful.

**DON'T GET BURNED! FOLLOW ALL SAFETY PRECAUTIONS!**

#### **PROTECTIVE CLOTHING**

Wear long sleeved clothing (particularly for gas shielded arc) in addition to gloves, apron and strong shoes. As necessary, use additional protective clothing such as leather jacket or sleeves, flameproof apron, and fire-resistant leggings. Avoid outer garments of untreated cotton. Bare skin protection: Wear dark substantial clothing, Button collars closed to protect the chest and neck and button any pockets to prevent entry of sparks.

#### **EYE AND HEAD PROTECTION**

Protect eyes from exposure to arc. NEVER look at an electric arc without protection. Welding helmet or shield containing an appropriate filter plate (Please refer to the section 'Welding Shield'). Place over face before striking arc. Protect filter plate with a clear cover plate. Cracked or broken helmet or shield should NOT be worn; radiation can pass through to cause burns.

Cracked, broken, or loose filter plates must be replaced IMMEDIATELY. Replace clear cover plate when broken, pitted, or spattered. WE SUGGEST you wear flash goggles with side shields under the helmet, to give some protection to the eyes should the helmet not be lowered over the face before an arc is struck. Looking at an arc momentarily with unprotected eyes (particularly high

intensity gas-shielded arc) can cause a retinal burn that may leave a permanent dark area in the field of vision. Before welding whilst wearing contact lenses, seek advice from your optician.

### **PROTECTION OF NEARBY PERSONNEL**

For production welding, a separate, well vented room or enclosed bay is best. In open areas, surround the operation with low reflective, non-combustible screens or panels. Allow for free air circulation, particularly at floor level. Provide face shields for all persons who will be looking directly at the weld. Others working in the area should wear flash goggles. Before starting to weld, make sure that screen or bay doors are closed.

## **SHOCK PREVENTION**

Exposed live conductors or other bare metal in the welding circuit, or in unearthed, electrically-LIVE equipment can fatally shock a person whose body becomes a conductor. DO NOT STAND, SIT, LIE, LEAN ON, OR TOUCH a wet surface when welding, without suitable protection.

### **PROTECTION FOR WEARERS OF ELECTRONIC LIFE SUPPORT DEVICES (PACEMAKERS).**

Magnetic fields from high currents can affect pacemaker operation. Persons wearing pacemakers should consult with their doctor before going near arc welding or spot welding operations.

Keep your body and clothing dry. Never work in a damp area without adequate insulation against electric shock. Stay on a dry duckboard or rubber mat when dampness or sweat cannot be avoided. Sweat, sea water or moisture between body and an electrically LIVE part - or earthed metal - reduces the body surface electrical resistance, enabling dangerous and possibly lethal currents to flow through the body.

### **1) EARTHING THE EQUIPMENT**

When arc welding equipment is earthed according to the National Electrical Code, and the workpiece is earthed, a voltage may exist between the electrode and any conducting object.

Examples of conducting objects include, but are not limited to, buildings, electrical tools, work benches, welding power source cases, workpieces, etc. Never touch the electrode and any metal object unless the welding power source is off. When installing, connect the frames of each unit such as welding power source, control, work table, and water circulator to the building earth. Conductors must be adequate to carry earth currents safely. Equipment made electrically LIVE by stray current may shock, possibly fatally. Do not EARTH to electrical conduit, or to a pipe carrying ANY gas or a flammable liquid such as oil or fuel.

## **2) TORCH**

A fully insulated torch should be used without protruding screws or other damage.

## **3) CONNECTORS**

Fully insulated lock-type connectors should be used to join welding cable.

## **4) CABLES**

Frequently inspect cables for wear, cracks and damage. IMMEDIATELY REPLACE those with excessively worn or damaged insulation to avoid possibly lethal shock from bared cable. Cables with damaged areas may be taped to give resistance equivalent to original cable. Keep cable dry, free of oil and grease and protected from hot metal and sparks.

## **5) TERMINALS AND OTHER EXPOSED PARTS**

Terminals and other exposed parts of electrical units should have insulating covers secured before operation.

## **6) SAFETY DEVICES**

Safety devices such as interlocks and circuit breakers should not be disconnected or shunted out. Before installation, inspection, or service of equipment, shut OFF all power and remove line fuses (or lock or red-tag switches) to prevent accidental turning ON of power. Do not open power circuit or change polarity while welding. If, in an emergency, it must be disconnected, guard against shock burns, or flash from switch arcing. Always shut OFF and disconnect all power to equipment. A power disconnect switch must be available near the welding power source.

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## PREPARATION OF THE WORKING AREA

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The working area must be sufficiently spacious, not humid, and well-ventilated as to avoid any fumes which develop from the welding process and from incidental material adhering to the pieces to be welded (oils, paints, tars...) which may cause danger to the operator.

Avoid welding tanks which may contain flammable residuals.



**WARNING: ELECTRIC SHOCK CAN BE FATAL. A PERSON QUALIFIED IN FIRST AID SHOULD ALWAYS BE PRESENT IN THE WORKING AREA. IF PERSON IS UNCONSCIOUS AND ELECTRIC SHOCK IS SUSPECTED, DO NOT TOUCH THE PERSON IF HE OR SHE IS IN CONTACT WITH THE WELDER OR CABLES. DISCONNECT THE WELDER FROM THE POWER SOURCE AND THEN USE FIRST AID. DRY WOOD, OR OTHER INSULATING MATERIAL CAN BE USED TO MOVE CABLES, IF NECESSARY, AWAY FROM THE PERSON.**

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## ADDITIONAL PRECAUTIONS FOR MIG WELDING

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1. **ALWAYS** ensure that there is full free air circulating around the outer casing of the machine, and that the louvres are unobstructed.
2. Welding arc can seriously damage your eyes. Both operator and spectators must **ALWAYS** use a proper welding face shield or helmet with suitable filter lenses. Proper gloves and working clothes should be worn at all times including a welding apron and welding screen.
3. **ALWAYS** inspect the torch hose before use to ensure it is in good condition.
4. **ALWAYS** keep the free length of torch hose outside the work area.
5. **ALWAYS** remove all flammable materials from the welding area.
6. **NEVER** remove any of the panels unless the machine is disconnected from the supply and never use the machine with any of the panels removed.
7. **NEVER** use or store in a damp environment. **DO NOT EXPOSE TO RAIN.**
8. **ALWAYS** keep a fire extinguisher handy....'Dry Powder, CO2 or BCF, NOT Water.
9. **NEVER** attempt any electrical or mechanical repair unless you are a qualified technician. If you have a problem with the machine contact your local CLARKE dealer.
10. **NEVER** continue to weld, if, at any time, you feel even the smallest electric shock. Stop welding **IMMEDIATELY** and **DO NOT** attempt to use the machine until the fault is diagnosed and corrected.



11. **NEVER** point the MIG torch at any person or animal.
12. **NEVER** touch the MIG torch nozzle until the welder is switched OFF and the nozzle has been allowed to cool.
13. **NEVER** connect, disconnect, or attempt to service the welding torch, until the machine is switched OFF and disconnected from the mains supply.
14. **NEVER** allow the earth cable or torch hose to become wrapped around the operator or any person in the vicinity.

A comprehensive range of CLARKE safety equipment for use when welding is available from your local dealer.

Consideration should be given to shielding the supply cable of permanently installed welding equipment, in metallic conduit or equivalent. Shielding should be electrically continuous throughout its length.

The shielding should be connected to the welding power source so that good electrical contact is maintained between the conduit and the welding power source enclosure.

The welding equipment should be routinely maintained according to the manufacturer's recommendations. All access and service doors and covers should be closed and properly fastened when the welding equipment is in operation. The welding equipment should not be modified in any way except for those changes and adjustments covered in the manufacturer's instructions. In particular, the spark gaps of arc striking and stabilizing devices should be adjusted and maintained according to the manufacturers recommendations.

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## ENVIRONMENTAL RECYCLING POLICY

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Through purchase of this product, the customer is taking on the obligation to deal with the WEEE in accordance with the WEEE regulations in relation to the treatment, recycling & recovery and environmentally sound disposal of the WEEE.

In effect, this means that this product must not be disposed of with general household waste. It must be disposed of according to the laws governing Waste Electrical and Electronic Equipment (WEEE) at a recognised disposal facility.

If disposing of this product or any damaged components, do not dispose of with general waste. This product contains valuable raw materials. Metal products should be taken to your local civic amenity site for recycling of metal products.

## ELECTRICAL CONNECTIONS




**WARNING: READ THESE ELECTRICAL SAFETY INSTRUCTIONS FULLY BEFORE CONNECTING THE PRODUCT TO THE MAINS SUPPLY.**

This product is provided with a standard 13 amp, 240 volt (50Hz), BS 1363 plug, for connection to a standard, domestic electrical supply. Should the plug need changing, make sure that a plug of identical specification is used.

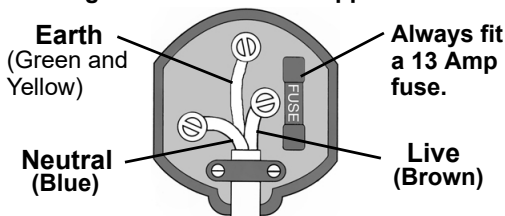


**WARNING: THE WIRES IN THE CABLE ARE COLOURED AS FOLLOWS:  
BLUE = NEUTRAL    BROWN = LIVE    YELLOW AND GREEN = EARTH**

If the colours of the wires in the power cable do not correspond with the markings on the terminals of your plug, proceed as follows.

- Connect the **blue** wire to the terminal marked **N**.
- Connect the **brown** wire to the terminal marked **L**.
- Connect the **Yellow and Green** wire to the terminal marked **E** or .

**Plug must be BS1363/A approved.**





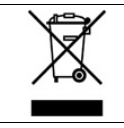









**make sure that the outer sheath of the cable is firmly held by the clamp**

**We recommend that this machine is connected to the mains supply via a Residual Current Device (RCD)**

If in doubt, consult a qualified electrician. DO NOT attempt any repairs yourself.

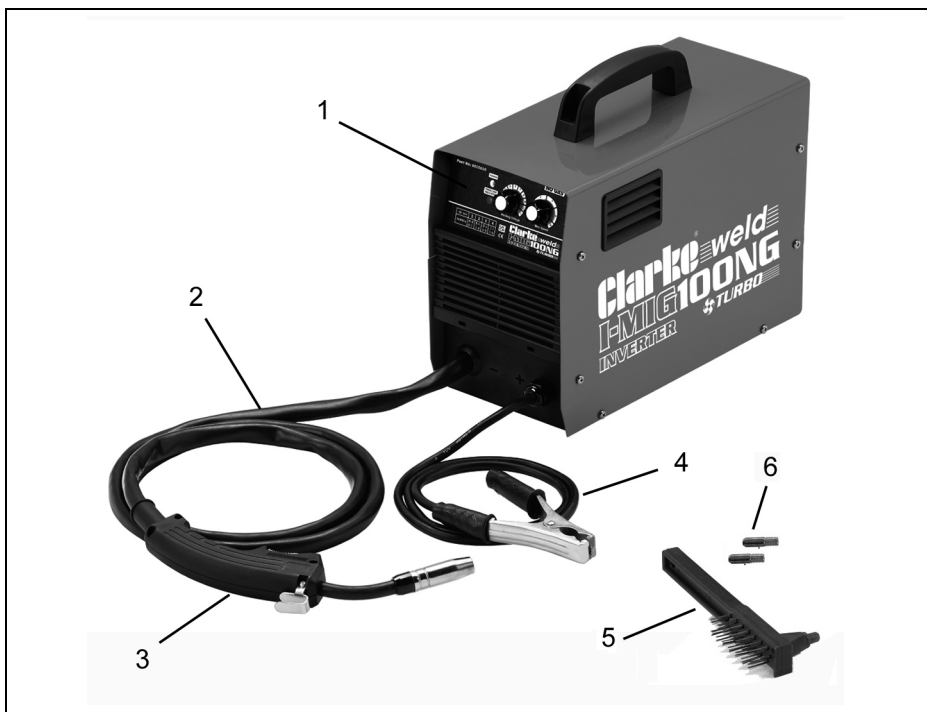
# SAFETY SYMBOLS

The following safety warning symbols are displayed on the machine.

|  |   |  |   |
|--|---|--|---|
|   | Read instruction manual before use.                           |   | Danger! Arc rays                                    |
|   | Recycle unwanted materials in accordance with WEEE directive. |   | Danger! Harmful fumes                               |
|   | Wear suitable welding gloves                                  |   | Do not weld near flammable or combustible materials |
|   | Danger! Risk of electric shock.                               |   |   |
|   | Caution! Hot surfaces.  |   | Magnetic Field may interfere with pace-makers       |
|  | When using this welder always use a welding helmet.           |  |   |

**NOTE:** Further safety warnings on the machine label carry their own explanations.

# OVERVIEW

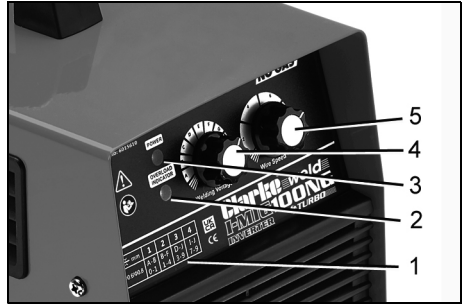


| NO | DESCRIPTION   | NO | DESCRIPTION   |
|----|---------------|----|---|
| 1  | Control Panel | 4  | Earth Clamp   |
| 2  | MIG Gun Hose  | 5  | Combination wire brush/hammer                               |
| 3  | MIG Torch     | 6  | Copper Torch Tips - 2 x 0.9 mm, loose & 1 x 0.9 mm (fitted) |

When unpacking, any damage or deficiency should be reported to your CLARKE dealer immediately.

## THE CONTROL PANEL

1. Welding Thickness Guide. Use this table as an initial guide to setting the welder and adjust for the best quality weld.
2. **Power Indicator Lamp.** This will light when the power is switched on.
3. **Thermal overload light.** If the duty cycle is exceeded as a result of welding too long with a high current, the yellow overload light will illuminate and the welder will turn off. When the welder has cooled down (approx. 5 to 10 minutes), the power will be restored and welding can recommence.
4. **Output Control Voltage.** Adjust the control according to the metal thickness.
5. **Wire speed control knob.** As a general rule, a higher current requires a higher wire speed.



## PREPARATION FOR USE

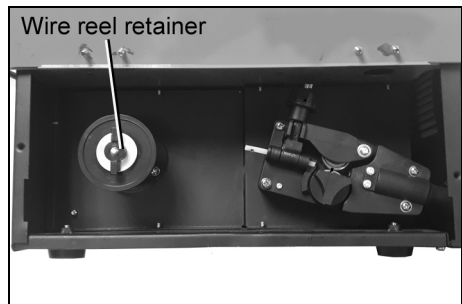
### MOUNTING THE WELDING WIRE SPOOL



**Warning:** Ensure that the welder is not connected to the mains supply.

**NOTE:** Spools of welding wire are available from your CLARKE dealer.

1. Open the side panel.
2. Remove the retaining wingnut, washer and retaining disc.
3. Fit the spool of welding wire (not supplied) over the spindle so that it compresses the spring.
  - DO NOT release the tension on the wire as it will unravel causing feeding problems later.
  - The wire will feed off the spool from the top of the reel.



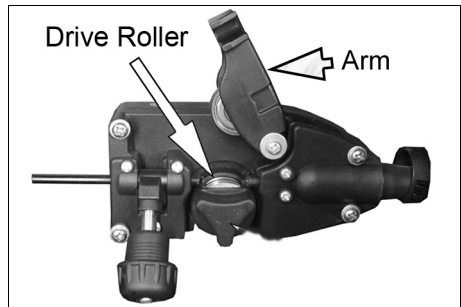
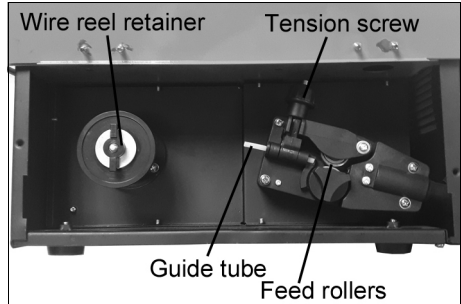
- The spool must be fitted with the correct orientation otherwise it will not feed correctly.

4. Refit the retaining disc, washer and wingnut.

## THREADING THE WIRE

**IMPORTANT: DO NOT release the tension on the wire as it will unravel causing feeding problems later.**

1. Pull out the end of the wire from the spool, taking care not to release the tension.
  - We recommend you cut off and discard the first 10 cm of wire from the spool to avoid burrs and then straighten the next few centimeters of wire to help with feeding.
2. Loosen the tensioning knob and pivot it towards you.
3. Lift up the arm.
4. Pass the wire through the guide tube, over the drive roller and into the torch liner.
  - Push about 10-15 cm into the torch liner.
5. Lower the arm and replace the tensioning knob.
  - Tighten the tensioning knob sufficiently to hold firmly, but do not fully tighten.



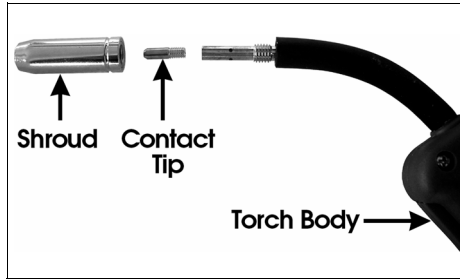
**NOTE:** Correct tension will allow the wire to feed into the torch liner smoothly, but will allow the drive roller to slip in the event of a blockage.

6. Close the welder side panel.



**WARNING: THE FOLLOWING STEPS REQUIRE POWER TO THE WELDER. DO NOT TOUCH ANYTHING WITH THE TORCH OR WELDING WIRE AS IT MAY RESULT IN ACCIDENTAL ARCING**

7. Pull off the torch shroud with a twisting movement, (if a tight fit, some hand grips will be required) then unscrew the contact tip.
8. Connect the welder to the power supply and switch ON.



9. Set the 'WIRE SPEED' rotary control on the front panel to position 4 or 6 and squeeze the trigger on the torch body.

- The wire will feed through the hose until it appears at the torch tip.
- Ensuring the hose is free from kinks during this process will assist the wire in its passage through the hose liner.



10. Release the trigger and switch off the welder and disconnect the machine from the mains supply.
11. Refit the appropriate size contact tip (0.9 mm, for no gas welding is supplied fitted) to suit your wire. then replace the shroud.
12. Trim the welding wire so that it protrudes no more than 5 mm from the end of the contact tip.

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# OPERATING THE WELDER

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## PREPARING THE WORKPIECE

The area being welded should be perfectly clean. Any coating, plating or corrosion must be removed, otherwise a good weld will be impossible to achieve.

Attach the earth clamp to the workpiece as close to the point of weld as possible, without it being intrusive.

## OPERATION

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CAUTION: THE DUTY CYCLE MUST BE ADHERED IN ORDER TO PREVENT THE THERMAL OVERLOAD PROTECTION FROM ACTIVATING

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1. The table below is displayed on the welder control panel. Adjust the Welding Voltage and Wire Speed controls according to the task.

|                        |        |     |     |     |     |
|------------------------|--------|-----|-----|-----|-----|
| Workpiece thickness    | -/- mm | 1   | 2   | 3   | 4   |
| Output voltage control | 0.9    | A-B | B-F | D-J | I-J |
| Wire Speed control     |        | 0-1 | 1-4 | 3-9 | 7-9 |

2. Plug the machine into the mains supply and switch on.
3. With the welding current set and the wire trimmed, set the wire feed control to an intermediate setting.
4. Cover your face with a welding mask or welding helmet.
  - This is essential.
5. Lower the torch to the workpiece with one hand and approach the work with the torch tip at an angle of about 35° and pull the trigger fully.
  - As the wire touches the workpiece an arc will be struck.
6. In order to produce a satisfactory weld, the controls may be fine tuned as required. This will come with practice.

**NOTE:** MIG welding is an acquired skill. It is strongly advised that, if you are not fully familiar with this type of welding, you practice on a piece of material with the same characteristics as your workpiece until you are satisfied with the result, and you have fine tuned your welder to produce a satisfactory weld.



**NOTE:** One of the problems experienced with novice welders is the welding wire sticking to the contact tip. This is as a result of the wire feed speed being too slow. It is always better therefore to start with too high a speed and back off slightly to avoid the possibility of the wire welding itself to the tip. This is the reason position 6 is recommended for start up.

**NOTE:** The Wire Feed control is for fine tuning the wire speed. The speed of wire delivery will increase automatically as the current is increased. Therefore, once the ideal speed is achieved by fine tuning, it should not be necessary to adjust this control when the welding current is changed.

**NOTE:** Listen to the sound made. An irregular crackling sound denotes too high a wire speed. Decrease the speed until a regular, strong buzzing sound is heard.

## THERMAL OVERLOAD

The 'Thermal Overload' shuts off the welder when it becomes too hot, due to the duty cycle being exceeded. This is to prevent any damage to the welder.

When this occurs, the warning lamp shown will light up. Allow the welder to cool until the amber light extinguishes before resuming work.



## DUTY CYCLE

The duty cycle determines the machine 'down time'. i.e 10% means 1 minutes operation followed by 9 minutes of rest. **The duty cycle must be adhered to prevent the thermal cutout protection from activating.**

|                               | IMIG100NG |      |      |
|-------------------------------|-----------|------|------|
| Duty Cycle (%)                | 20        | 60   | 100  |
| Rated Welding Current (A)     | 100       | 68   | 52   |
| Conventional Load Voltage (V) | 19        | 17.4 | 16.6 |

**Do not exceed the stated duty cycle for this machine. Failure to heed this warning may invalidate your warranty.**

These welders are covered by regulations EN 60974-1 and EN 50199, where the duty cycle is expressed as a percentage of time the machine may be used in a given period for a specified welding current.

Using the example shown, which is an illustration of the data plate;-

e.g. when welding at 40 amps the machine may be used for 6 minutes (60%) in any 10 minute period.

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## WELDING ADVICE

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- Try to maintain the tip of the nozzle at an angle of approx. 45° and at a constant distance of approx 5-7mm from the workpiece.
- Try to maintain a constant speed of movement with the torch.
- DO NOT weld in windy conditions or in an area where ventilation is a problem, or where air flow fluctuates.
- ALWAYS keep the wire and nozzle clean...NEVER use rusted wire.
- Avoid sharp bends or kinks in the welding hose.
- Whenever possible, clean out the wire liner with compressed air when replacing the wire spool.
- Periodically remove the dust using LOW PRESSURE compressed air within the casing. Adequate heat dissipation is essential during the welders operation.

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## MAINTENANCE

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**WARNING: ELECTRICITY CAN KILL - NEVER TOUCH LIVE ELECTRICAL COMPONENTS.**

**WARNING: DISCONNECT THE POWER SUPPLY BEFORE ALL INSPECTIONS AND MAINTENANCE OPERATIONS. BEWARE HOT SURFACES.**

**WARNING: ALWAYS LET THE WELDER COOL DOWN BEFORE ACCESSING INTERNAL COMPONENTS.**

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Frequency of maintenance operations depends on the operating conditions, how intensively the welder is used and how clean or dirty the welding site is (aggressive environments etc).

Always inspect the earth cable and torch hose before use, to ensure they are in perfect condition and that the earth clamp is clean and secured correctly to the cable.

Check the hose for security and damage.

As a general rule the power supply should be inspected at least annually. Consult your CLARKE dealer for advice if necessary.

### **Wire Feed Unit**

The feed roller wire guide plays an important part in obtaining consistent results. Clean the rollers weekly, especially the feed roller groove, removing all dust deposits.

### **Torch**

Protect the torch hose assembly from mechanical wear. Clean the liner from the machine forwards by using compressed air. If the liner is blocked it must be replaced.

### **Contact Tip**

The contact tip is a consumable item and must be replaced when the bore becomes enlarged or oval. The contact tip **MUST** be kept free from spatter to ensure an unimpeded flow of gas.

To keep the contact tip free from spatter, we recommend the use of anti-spatter spray (6000715) available from your CLARKE dealer.

### **Torch Shroud**

The torch shroud must also be kept clean and free from spatter. Build-up of spatter inside the gas cup can cause a short circuit at the contact tip which will result in expensive machine repairs.

## TROUBLESHOOTING

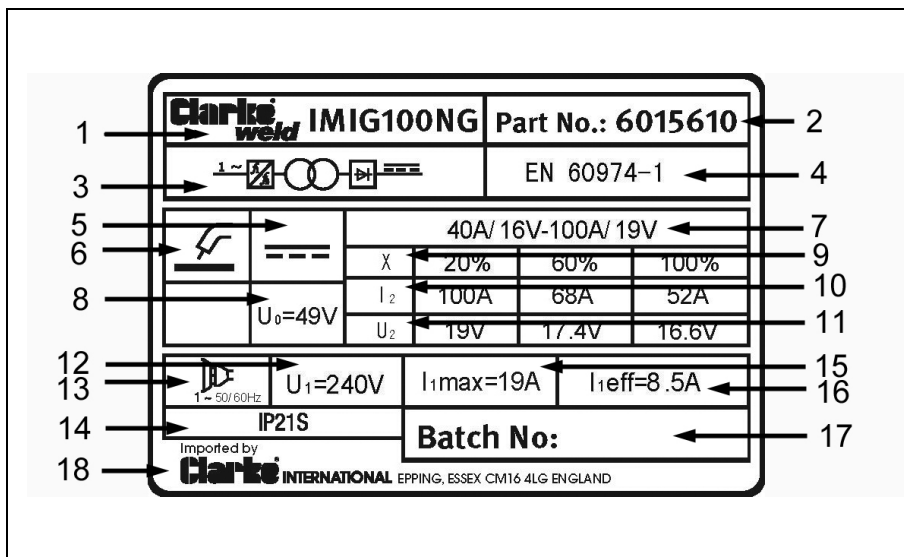
Your CLARKE welder has been designed to give long and trouble free service. If however, having followed the instructions in this booklet carefully you still encounter problems the following points should help identify and resolve them.

| PROBLEM   | CAUSE   | SOLUTION  |
|---|---|---|
| No response from welder.                                  | Check fuses and mains lead.                     | Replace fuses as necessary. If problem persists return welder to your local dealer.   |
|   |   | Check fuse size.  |
| Welder does not feed wire.                                | Feed motor has malfunctioned.                   | Return welder to your local dealer.   |
| Feed motor running but no wire being fed from welder tip. | Insufficient Feed Roller pressure.              | Increase roller pressure.   |
|   | Burr on end of wire.                            | Re-cut wire square with no burr.  |
|   | Liner blocked or damaged.                       | Clean with compressed air or replace liner.   |
|   | Inferior wire                                   | Use only good "clean" wire.   |
|   | Roller worn out.                                | Replace roller.   |
| Wire welds itself to tip.                                 | Wire feed speed too low.                        | Unscrew tip, cut wire and fit new tip.<br>Increase wire speed before operating again. |
|   | Wrong size tip.                                 | Fit correct size tip.   |
| Wire feeds into 'birds nest' tangle.                      | Wire welded to tip                              | As above plus reduce feed roller pressure.  |
|   | Wire liner damaged preventing smooth operation. | Renew wire liner.   |

| <b>PROBLEM</b>  | <b>CAUSE</b>                                   | <b>SOLUTION</b>   |
|---|--|---|
| Loose coils of wire tangle around wire drum inside machine. | Locking knob too slack.                        | Tighten Locking Knob slightly. Do not over-tighten.   |
| Erratic wire feed.  | Tensioning Knob too tight.                     | Loosen Tensioning Knob slightly.  |
|   | Tension roller worn.                           | Check and replace if necessary.   |
|   | Insufficient pressure on tension roller.       | Increase pressure on tension roller<br>Caution: Do not over-tighten.  |
|   | Wire dirty, rusty, damp or bent.               | Re-cut wire and ensure it is clean.   |
|   | Liner partially blocked.                       | Clean with compressed air.  |
| Poor quality welds.   | Rusty, painted, damp, oil or greasy workpiece. | Ensure workpiece is clean and dry.  |
|   | Rusty/dirty wire.                              | Ensure wire is clean and dry.   |
|   | Poor earth contact.                            | Check earth clamp/workpiece connection.   |
| Welder cuts out whilst in use.                              | Duty cycle exceeded (auto cut-out operates).   | Allow welder to cool 15-30 mins before continuing.<br>Note: If duty cycle is continually exceeded, damage to the welder may result and welder output is probably too small for application. |

**If you have any problems which cannot be resolved by reference to the above, or if you require spare parts for your welder please contact your local Clarke dealer.**

# RATING PLATE



|   |   |    |                                  |
|---|---|----|----------------------------------|
| 1 | Model number  | 10 | Rated Welding Current symbol     |
| 2 | Part number   | 11 | Load Voltage symbol              |
| 3 | Single phase transformer-rectifier                        | 12 | Rated supply voltage             |
| 4 | British Standards applied                                 | 13 | Energy Input symbol              |
| 5 | Welding Current symbol - direct current.                  | 14 | Degree of protection             |
| 6 | Welding process   | 15 | Rated maximum supply current     |
| 7 | Min + max welding current and corresponding load voltages | 16 | Maximum effective supply current |
| 8 | Rated no-load voltage                                     | 17 | Batch number                     |
| 9 | Duty Cycle symbol   | 18 | Name and address of manufacturer |

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## SPECIFICATIONS

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| <b>Model</b>                  | <b>IMIG 100NG</b>                   |
|-------------------------------|-------------------------------------|
| Part No                       | 6015610                             |
| Weight                        | 5.85 kg                             |
| Dimensions (l x w x h) mm     | 343 x 155 x 290                     |
| Power Supply                  | 240 V @ 50Hz                        |
| IP Rating                     | IP21S (do not store or use in rain) |
| Output Min/Max Amps           | 40 /100 Amps                        |
| Rated Max Input Current       | 19 A/8.5A                           |
| Peak input power              | 3.47kW                              |
| Welding Capacity (Mild Steel) | 4 mm (maximum)                      |
| Duty cycle                    | 20%                                 |
| Welding wire diameter         | 0.9mm                               |
| Spool capacity                | 1kg mini spool (max)                |
| Feed speed range              | 2-11M                               |

CLARKE International reserve the right to change specifications at any time without prior notice.

# CONSUMABLES

The following are some of the accessories available from your CLARKE dealer.

Please quote the part numbers shown below:



| Part | Description         | Part No                                   |         |
|------|---------------------|---|---------|
| 1    | Welding Clamps      | 3-piece locking clamp set                 | 1800103 |
| 2    | Welding Magnets     | 2-piece clamp set for holding work still  | 1800117 |
| 3    | Welding Gauntlets   | Heat resistant, fully lined split leather | 8133492 |
| 4    | Welding Screen      | Protects onlookers from welding arc       | 6000945 |
| 5    | Welding Tips        | 1.0 mm (pack of 5)                        | 8132030 |
| 6    | Anti-splatter Spray | 500ml aerosol for use with MIG welders    | 6000715 |
| 7    | Torch Shroud        | Pack of 2 for most MIG welders            | 8132050 |
| 8    | Welding Blanket     | Heat resistant with eyelets               | 6000924 |
| 9    | Welding Apron       | Manufactured from protective leather      | 6000920 |
| 10   | Welding Wire Spools | Flux cored mild steel (mini spool) 0.9mm  | 8132110 |
| 11   | Swan neck           | Replacement for all CLARKE welders        | 8132290 |



## ARC ACTIVATED HEADSHIELDS

These highly popular head shields activate instantly when the arc is struck and allow you to have both hands free when welding.

| Model | Arc Activated | Grinding function | Solar Powered | Fixed Shade | Flip Up | Part Number |
|-------|---------------|-------------------|---------------|-------------|---------|-------------|
| GWH4  | ✓             | ✓                 | ✓             |             |         | 6000706     |
| GWH7  | ✓             | ✓                 | ✓             |             |         | 6000709     |
| GWH5  | ✓             | ✓                 | ✓             |             |         | 6000707     |
| GWH6  | ✓             | ✓                 | ✓             |             |         | 6000708     |
| PG4   | ✓             | ✓                 | ✓             |             |         | 6000716     |
| HS1   |               |                   |               | ✓           | ✓       | 6000700     |
| HSF1  |               |                   |               | ✓           | ✓       | 6000705     |



# DECLARATION OF CONFORMITY-UK



**Clarke**<sup>®</sup>  
**INTERNATIONAL**

Hemnall Street, Epping, Essex CM16 4LG

## DECLARATION OF CONFORMITY

**This is an important document and should be retained.**

**We hereby declare that this product(s) complies with the following statutory requirement(s):**

*Electromagnetic Compatibility Regulations 2016*

*Electrical Equipment (Safety) Regulations 2016*

*The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012*

**The following standards have been applied to the product(s):**

*EN 60974-10:2014+A1:2015, IEC 60974-1:2017+A1:2019, EN IEC 60974-1:2018, IEC 62321-2:2013,*

*IEC 62321-3-1:2013, IEC 62321-5:2013, IEC 62321-4:2013+AMD1:2017, IEC 62321-7-1:2015,*

*IEC 62321-7-2:2017, IEC 62321-6:2015, IEC 62321-8:2017.*

The technical documentation required to demonstrate that the product(s) meet(s) the requirement(s) of the aforementioned legislation has been compiled and is available for inspection by the relevant enforcement authorities.

The UKCA mark was first applied in: 2022

**Product Description:** 100 Amp Inverter Mig Welder

**Model number(s):** IMIG100NG

**Serial / batch Number:** n/a

**Date of Issue:** 04/02/2022

**Signed:**

**J.A. Clarke**  
**Director**

# DECLARATION OF CONFORMITY-EU



**Clarke**<sup>®</sup>  
**INTERNATIONAL**

Fitzwilliam Hall, Fitzwilliam Place, Dublin 2

## DECLARATION OF CONFORMITY

**This is an important document and should be retained.**

**We hereby declare that this product(s) complies with the following directive(s):**

2014/30/EU *Electromagnetic Compatibility Directive*

2014/35/EU *Low Voltage Equipment Directive*

2011/65/EU *Restriction of Hazardous substances*

**The following standards have been applied to the product(s):**

*EN 60974-10:2014+A1:2015, IEC 60974-1:2017+A1:2019, EN IEC 60974-1:2018, IEC 62321-2:2013,*

*IEC 62321-3-1:2013, IEC 62321-5:2013, IEC 62321-4:2013+AMD1:2017, IEC 62321-7-1:2015,*

*IEC 62321-7-2:2017, IEC 62321-6:2015, IEC 62321-8:2017.*

The technical documentation required to demonstrate that the product(s) meet(s) the requirement(s) of the aforementioned directive(s) has been compiled and is available for inspection by the relevant enforcement authorities.

The CE mark was first applied in: 2022

**Product Description:** 100 Amp Inverter Mig Welder

**Model number(s):** IMIG100NG

**Serial / batch Number:** n/a

**Date of Issue:** 04/02/2022

**Signed:**

**J.A. Clarke**  
**Director**

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[Service@clarkeinternational.com](mailto:Service@clarkeinternational.com)

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