

CLAMPBRO®



WARNING: A suitable welding headsheild must be worn during use
WARNING: Read these instructions before using the machine

200 AMP ARC WELDER

MODEL NO: EASIARC 200

PART NO: 6010980

OPERATION & MAINTENANCE INSTRUCTIONS



LS0411

INTRODUCTION

Thank you for purchasing this CLARKE Welder.

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.

GUARANTEE

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.

ENVIRONMENTAL PROTECTION



Do not dispose of this product with general household waste. All tools, accessories and packaging should be sorted, taken to a recycling centre and disposed of according to the laws governing Waste Electrical and Electronic Equipment.

ACCESSORIES

The following are some of the accessories available from your CLARKE dealer. Please quote the part numbers shown below:

| DESCRIPTION | PART NUMBER |
|---------------------------------------|-------------|
| CWH6 Arc Activated Welding Headshield | 6000671 |
| 2 mm Welding Electrodes | 3050555 |
| 2.5 mm Welding Electrodes | 3050560 |
| 3.25 mm Welding Electrodes | 3050565 |

GENERAL SAFETY INSTRUCTIONS



WARNING: WHEN USING ELECTRICAL TOOLS, BASIC SAFETY PRECAUTIONS SHOULD ALWAYS BE FOLLOWED TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK AND PERSONAL INJURY

WARNING: READ ALL THESE INSTRUCTIONS BEFORE ATTEMPTING TO OPERATE THIS PRODUCT AND KEEP THESE INSTRUCTIONS IN A SAFE PLACE.

ELECTRIC SHOCK

- Remove the plug from the socket and wait 5 minutes to allow the capacitors to discharge before carrying out servicing or maintenance.
- Do not touch live electrical parts.
- Never use electrode holders or cables which are damaged.
- Keep working environment, equipment, cables and clothing free from grease, oil, moisture and dirt.
- Ensure welding machine has been correctly earthed.
- The operator must be insulated from the floor and work bench using a dry insulation mat.
- Always ensure a second person is present in case of accident.
- Never change electrodes with bare hands or damp gloves.
- Keep welding cables away from power cables.
- Regularly inspect the condition of the cables for signs of damage.
- Remove plug from the mains socket when not in use, do not leave the machine unattended.
- Ensure earth clamp is secured to bare metal adjacent to weld seam, and when not in use is

insulated for safety. - Keep all equipment well maintained.

- The operator shall prevent gas cylinders in the vicinity of the work piece from becoming part of the welding circuit.

FUMES & GASES

- The welding process generates hazardous fumes as a by-product. Inhalation of these fumes is hazardous to health.
- Keep your head away from the weld to avoid breathing the fumes.
- If welding in confined spaces ensure adequate ventilation and use a fume extractor.
- By-products of welding can react to create a toxic/explosive environment.

FIRE OR EXPLOSION

Welding can cause fire and explosions. Precautions should be taken to prevent these hazards.

- Before starting work ensure the area is clear of flammable materials.
- Move any combustible materials to a safe distance, especially substances likely to generate a dangerous vapour.

- The welding arc can cause serious burns. Avoid contact with skin.
- Sparks and molten metal are ejected during welding. Take precautions to prevent fires.
- Sparks and molten metal can pass through gaps. Be aware that fire can start out of sight.
- Do not weld pressurised containers, or containers containing flammable vapours e.g. fuel tanks.
- Always have appropriate fire fighting equipment to hand suitable for use in electrical environments.
- Avoid carrying any fuels with you e.g. cigarette lighters or matches.
- Do not weld in the vicinity of children or animals and ensure no-one is looking before striking an arc.
- Wear hearing protection if required.
- Allow the weld time to cool. Hot metal should never be handled without gloves.
- Take care when adjusting or maintaining the torch, that it has had time to cool sufficiently and the welder is disconnected from the mains supply.
- 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.
- A hard hat should be worn when others are working overhead.
- Flammable hair sprays/gels should not be used by persons intending to weld or cut.

PERSONAL PROTECTION

- The body should be protected by suitable clothing.
- The use of neck protection may be necessary against reflected radiation.
- Arc machines generate a magnetic field which is detrimental to pacemakers. Consult your doctor before going near active welding equipment/operations.
- **The UV and IR radiation generated by welding is highly damaging to the eyes, causing burns. This can also affect the skin.**
- **Always use a suitable welding shield equipped with appropriate protective filters.**
- Where there are pedestrians and traffic ensure a protective screen is used to avoid accidental arc glare.

PROTECTIVE CLOTHING

- Wear gauntlet gloves designed for use in welding,
- Wear an apron, and protective shoes.
- Wear cuffless trousers to avoid entry of sparks and slag.
- Avoid oily greasy clothing.
- Protective head and shoulder coverings should be worn when welding overhead.

- Wear a helmet or 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 cover glass when broken, pitted, or spattered.
- NEVER allow children or animals in the vicinity of a welding operation.
- ALWAYS remove all flammable materials from the welding area.
- ALWAYS ensure that there is full free air circulating around the outer casing of the machine, and that the louvres are unobstructed.

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

ADDITIONAL SAFETY PRECAUTIONS FOR ARC WELDERS

- NEVER attempt to remove any of the panels unless the machine is disconnected from the power supply.
- NEVER use the machine with any of the panels removed.
- 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.
- NEVER use or store in a wet/damp environment. **DO NOT EXPOSE TO RAIN.**
- Welding arc can seriously damage your eyes. Both the operator and any spectators should always use a proper welding face shield or helmet, with suitable filter lenses. Proper gloves and working clothes should be worn at all times.
- ALWAYS wear a pair of safety spectacles/goggles when chipping away slag after welding. Remember, ordinary eye glasses are not safety gasses.
- ALWAYS ensure there is adequate ventilation or extraction in the work area as the welding process gives off toxic fumes.
- ALWAYS ensure there is a fire extinguisher on hand.
- ALWAYS ensure that a medical supply is on hand, and that treatment for burns is available.

SAFETY SYMBOLS



General Warning, indicates that failing to follow these instructions could result in injury or damage to the machine.



Recycle unwanted materials instead of disposing of them as waste. All tools, accessories and packaging should be sorted, taken to a recycling centre and disposed of in a manner which is compatible with the environment.

ELECTRICAL CONNECTIONS



WARNING: READ THESE ELECTRICAL SAFETY INSTRUCTIONS THOROUGHLY BEFORE CONNECTING THE PRODUCT TO THE SUPPLY.

WARNING: NEVER FIT A STANDARD 230V, 13AMP (BS1 363) PLUG TO THESE MACHINES

230V SUPPLY

Connect the mains lead to a suitably fused 230 Volt (50Hz) electrical supply. The fuse rating should correspond to that shown on the data plate on the rear panel of the machine. For a full explanation of the rating plate, see page 15.



WARNING! The wires in the power cable of this product are coloured in accordance with the following code:

Blue = Neutral Brown = Live Yellow and Green = Earth

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

- The wire which is coloured **Blue** must be connected to the terminal which is marked **N** or coloured **Black**.
- The wire which is coloured **Brown** must be connected to the terminal which is marked **L** or coloured **Red**.
- The wire which is coloured **Yellow and Green** must be connected to the terminal which is marked **E** or \perp or coloured **Green**.

400V SUPPLY

For connecting to a 400V (Single Phase) supply, the colour codes of the wires are as follows: **Green and Yellow - Earth Blue - Live (L1) Brown - Live (L2)**

If in any doubt, consult a qualified electrician.

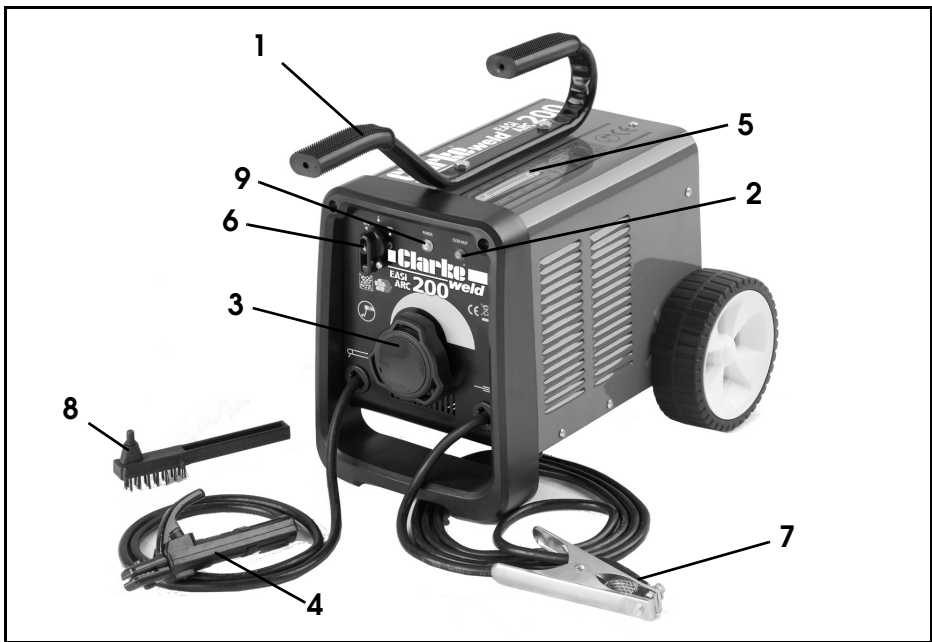
UNPACKING

Any damage or deficiency should be reported to your CLARKE dealer immediately.

The components include the following:

- 1 x 200 Amp AC Arc Welder
- 1 x Combination Wire Brush & Hammer
- 1 x Clarke Instruction Manual

OVERVIEW



| NO | DESCRIPTION | NO | DESCRIPTION |
|----|------------------------------|----|----------------------------------|
| 1 | Handle | 6 | On/Off Switch / Voltage Selector |
| 2 | Overload Indicator | 7 | Earth Clamp |
| 3 | Welding Current Selector | 8 | Combination Wire Brush & Hammer |
| 4 | Welding Rod Electrode Holder | 9 | Power Indicator |
| 5 | Welding Current Scale | | |

ASSEMBLY

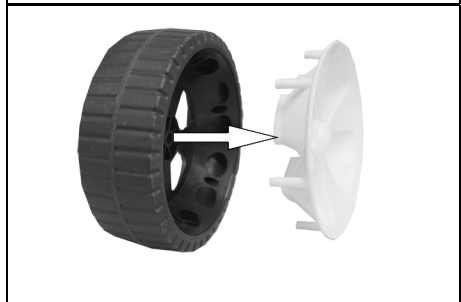
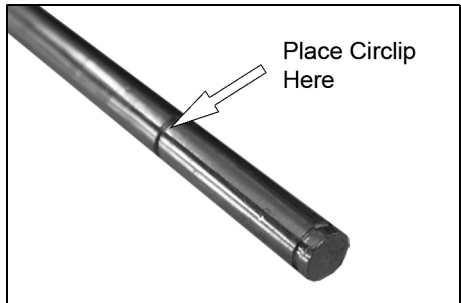
FITTING THE HANDLE

1. Remove the two bolts at the top of the welder.
2. Position the handle as shown and secure with the two bolts.

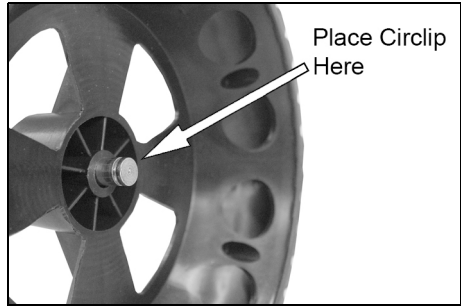


FITTING THE WHEELS

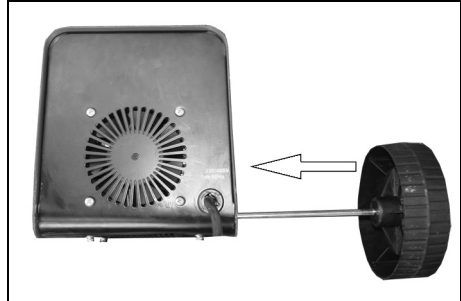
1. Place a circlip on the inner groove on the axle.
2. Carefully remove the wheel cover.
3. Slide the wheel onto the axle.



4. Place the second circlip on the outer groove on the axle.
5. Replace the wheel cover



6. Slide the axle through the body of the welder as shown.
7. Fix the second wheel to the other end of the axle as described.



DUAL SUPPLY

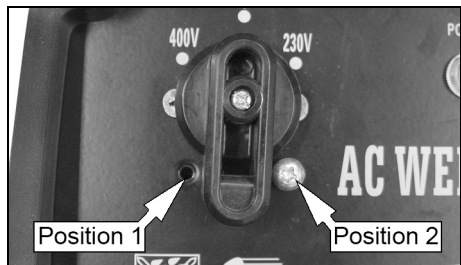
This machine is capable of operating on 230V or 400V (single phase), the voltage selector is designed so that it can select only one voltage.

The position of the screw, arrowed in the illustration opposite will determine the voltage selection.

With the screw in:

POSITION 1, the switch may be turned from ○ - OFF to 400V.

POSITION 2, the switch may be turned from ○ - OFF to 230V.



ARC WELDING PRINCIPLES

A consumable electrode is connected to a high voltage supply which creates an electric arc between the electrode and the workpiece. The arc is used to create the required heat to turn the metal into a molten state. The electrode is also used as a filler.

The shielding gas is created from the flux within the welding wire.

When using the welder outside, you may need to take measures to erect a wind break to make sure the shielding gas is not blown away, thereby leaving a poor quality weld.

PREPARATION FOR USE

FITTING THE WELDING ROD

1. Select the appropriate welding rod, and insert it into the welding rod holder.
 - It should be approximately the same thickness as the metal being welded.

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.

ATTACHING THE EARTH CLAMP

Attach the earth clamp firmly to the workpiece as close as possible to the point of weld.

IMPORTANT: Ensure that the earth clamp is attached to clean, solid metal. If necessary thoroughly clean with a wire brush or similar to guarantee a good connection.

FEATURES

THERMAL CUTOUT

If the machine stops at any time and the amber light on the front panel illuminates, the thermal cutout has activated.

Wait until the transformer has cooled sufficiently (the amber light goes out) before restarting work.

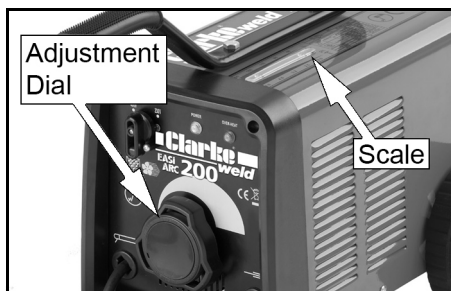


USING THE WELDER

SETTING THE WELDING CURRENT

1. Select the welding current by turning the welding current selector and observing the setting on the scale, on top of the machine.

The chart below is an indicator of the thickness of material/ welding rod thickness and the corresponding welding current. This is intended as a guide only.



| SIZE OF WELDING ROD / THICKNESS OF METAL | | | AMPERAGE SETTING |
|--|--------|---------|------------------|
| 1/16" | 14 swg | 2.0 mm | 60-70 |
| | 12 swg | 2.5 mm | 75-95 |
| 1/8" | 10 swg | 3.25 mm | 100-140 |
| | | 4 mm | 140-180 |

NOTE: With practice you will get a feel for the best current settings for different welding rod thicknesses.

STRIKING AN ARC

IMPORTANT: BEFORE YOU STRIKE AN ARC, BRING THE FACE SHIELD UP TO PROTECT YOUR EYES.

1. Switch ON the machine.
2. Line up the electrode exactly over the spot where you want to strike.
3. Position your shield in front of your face and tap down firmly with the electrode. Once you tap down and contact is made, you must instantly raise the electrode to the required arc gap.



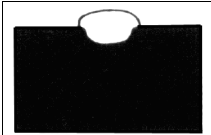
- The arc gap should be roughly the same as the diameter of the electrode.
- If you withdraw the electrode too far once the arc is struck, you will lose the arc and have to try again.

NOTE: One thing that usually happens when you are striking an arc is that the electrode sticks to the work. It should come unstuck with a sharp tug. If it will not free easily, then turn off the welder immediately as it will quickly overheat, then give the join a tap from the chipping hammer. As you get more experienced, this will happen less.

4. Once the arc is struck, move the electrode along its intended path, keeping the tip in the molten pool at all times
 - You must also get used to feeding down the electrode steadily as it burns away.
 - An even crackling noise should be heard, which is an indication of a good weld.
5. Inspect the job carefully, the area of weld should be a complete fusion of the electrode and parent metal(s).
 - Any slag which forms on the surface should be chipped away with the hammer/brush supplied.
 - If the resultant weld looks messy and irregular, this is an indication of porosity or slag contamination, and you have almost certainly failed to achieve the correct combination of working speed and current. This is a common problem, so do not worry as practice will quickly cure this.

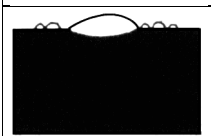
WELDING PITFALLS

The arc welding technique is an acquired skill and requires considerable practice before perfect results are obtained. The diagrams below will help to explain the pitfalls in your technique and how to overcome them.



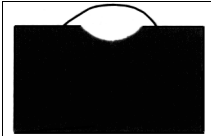
ARC TOO SHORT

This causes irregular masses of weld to be deposited, with slag contamination on an uneven surface.



ARC TOO LONG

This causes poor penetration resulting in a weak weld with excessive spatter and porosity. Surface of the weld is rough and the arc makes a hissing sound.



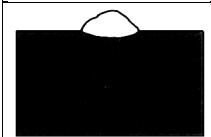
ELECTRODE MOVED TOO SLOWLY

This causes a very wide and heavy deposit which overlaps at the sides. It is wasteful both in terms of time and electrode use.



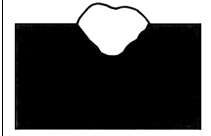
ELECTRODE MOVED TOO QUICKLY

This causes poor penetration with a 'stringy' and incomplete weld deposit. Slag is very hard to remove.



CURRENT TOO LOW

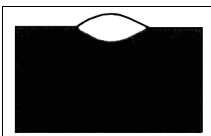
This causes poor penetration and causes the electrode to easily stick to the workpiece. Also results in a very irregular and high weld deposit. Slag is very hard to remove.



CURRENT TOO HIGH

This causes excessive penetration with spatter and deep pointed crater. It may also cause holes to be burned in the workpiece.

Burns electrodes very quickly.



THE PERFECT WELD

With the correct combination of arc length, current regulation, inclination and speed of the electrode, you will, with practice produce the perfect weld.

This should be regular with uniform ripples and no slag contamination. The arc will make a steady crackling sound.

MAINTENANCE



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

WARNING: DISCONNECT THE POWER SUPPLY BEFORE ALL INSPECTION AND MAINTENANCE OPERATION BEWARE HOT SURFACES.

WARNING: ALWAYS LET THE POWER SUPPLY COOL DOWN BEFORE ACCESSING INTERNAL COMPONENTS.

The 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 atmospheres etc).

Always inspect the earth return 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.

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

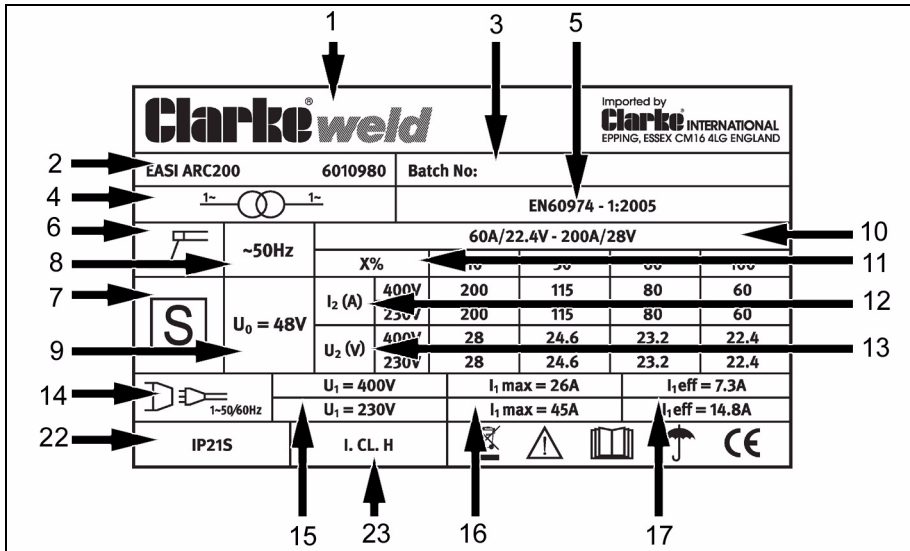
DUTY CYCLE

This welder is covered by regulations EN60974-1 and EN 50199, where the Duty Cycle (X) is expressed as a percentage of time the machine may be used in a given period for a specified welding current.

i.e. When welding at 80 Amps the machine may be used for 6 minutes (60%) in any 10 minute period, or, the machine may be used continuously, (100%) when welding at 60 Amps.

| EASI ARC200 | | 6010980 | | Batch No: | | EN60974 - 1:2005 | |
|-------------|----------------------|-----------------------|--------------------------|-----------|----------------------------|------------------|------|
| ~50Hz | | 60A/22.4V - 200A/28V | | | | | |
| S | U ₀ = 48V | I ₂ (A) | 400V | 200 | 115 | 80 | 60 |
| | | 230V | 200 | 115 | 80 | 60 | |
| D | 1-50/60Hz | U ₂ (V) | 400V | 28 | 24.6 | 23.2 | 22.4 |
| | | 230V | 28 | 24.6 | 23.2 | 22.4 | |
| | | U ₁ = 400V | I ₁ max = 26A | | I ₁ eff = 7.3A | | |
| | | U ₁ = 230V | I ₁ max = 45A | | I ₁ eff = 14.8A | | |
| IP21S | I. CL. H | | | | | | CE |

RATING PLATE



| | | | |
|----|--|----|----------------------------------|
| 1 | Name and address of manufacturer | 13 | Conventional Load Voltage |
| 2 | Model number, part number | 14 | Energy Input symbol |
| 3 | Batch number | 15 | Rated supply voltage |
| 4 | Single phase transformer | 16 | Rated maximum supply current |
| 5 | British Standards applied | 17 | Maximum effective supply current |
| 6 | Manual metal arc welding with covered electrode | 18 | N/A |
| 7 | This symbol indicates that the unit is suitable for carrying out welding operations in an environment which has an increased risk of electric shock. | 19 | N/A |
| 8 | Welding Current symbol | 20 | N/A |
| 9 | Rated no-load voltage | 21 | N/A |
| 10 | Max welding current and corresponding load voltages | 22 | Degree of protection |
| 11 | Duty Cycle Percentage | 23 | Class of protection. |
| 12 | Rated Welding current | | |

SPECIFICATIONS

| | |
|---|----------------------------------|
| Model | Easiarc 200 |
| Power Supply | 230V / 400V @ 50Hz Single Phase |
| Rated Max Input Current I_{1Max}/I_{1eff} | 45/14.8 A (230V) , 26/7.3A(400V) |
| Open Circuit Voltage | 48V |
| IP Rating | IP21S |
| Output Min./Max Current | 60 - 200 Amps |
| Usable Electrodes | 2 mm - 4 mm |
| Dimensions (l x w x h) | 498 x 355 x 410 mm |
| Weight | 19.6 kg |
| Part Number | 6010980 |

NOTE: The details and specifications contained herein, are correct at the time of going to print. However, CLARKE International reserve the right to change specifications at any time without prior notice.

DECLARATION OF CONFORMITY



Clarke[®]
INTERNATIONAL

Hemndell 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 directive(s):

2004/108/EC *Electromagnetic Compatibility Directive.*
2006/95/EC *Low Voltage Equipment Directive.*
2002/95/EC *Restriction of Hazardous substances.*

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

EN 60974-6:2003, EN 60947-10, EN 55011:2007

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: 2009

Product Description: Arc Welding Machines
Model number(s): Easiarc 110, 200
Serial / batch Number: n/a
Date of Issue: 02/09/2010

Signed:

J.A. Clarke
Director

NOTES

NOTES

A SELECTION FROM THE VAST RANGE OF

Clarke®

QUALITY PRODUCTS

AIR COMPRESSORS

From DIY to industrial, Plus air tools, spray guns and accessories.

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Prime duty or emergency standby for business, home and leisure.

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Hot and cold, electric and engine driven - we have what you need

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Mig, Arc, Tig and Spot. From DIY to auto/industrial.

METALWORKING

Drills, grinders and saws for DIY and professional use.

WOODWORKING

Saws, sanders, lathes, mortisers and dust extraction.

HYDRAULICS

Cranes, body repair kits, transmission jacks for all types of workshop use.

WATER PUMPS

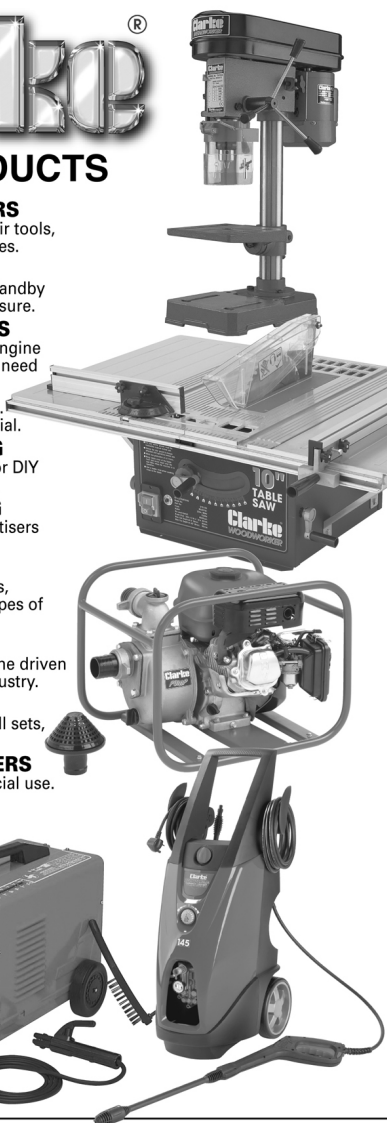
Submersible, electric and engine driven for DIY, agriculture and industry.

POWER TOOLS

Angle grinders, cordless drill sets, saws and sanders.

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All sizes for car and commercial use.



PARTS & SERVICE: 0208 988 7400

E-mail: Parts@clarkeinternational.com or Service@clarkeinternational.com

SALES: UK 01992 565333 or Export 00 44 (0)1992 565335

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