

# Clarke®

# PUMP



**MULTI-STAGE SUBMERSIBLE PUMP**

**MODEL NO: PSD1A**

PART NO: 7236070

## OPERATION & MAINTENANCE INSTRUCTIONS



ORIGINAL INSTRUCTIONS

GC04/17 ISS 2

---

## INTRODUCTION

---

Thank you for purchasing this CLARKE Submersible Pump.

This pump is designed for pumping clean water only. It is not designed for pumping slurry, sludge, mud or heavily polluted water, or any water containing chemicals or other acidic contaminants including salt water.

---

## GUARANTEE

---

This product is guaranteed against faulty manufacture for a period of 12 months from the date of purchase. Please keep your receipt which will be required 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 RECYCLING POLICY

---



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.

---

# **SAFETY PRECAUTIONS**

---

## **WORK AREA**

1. Keep the work area clean and well lit. Floors should always be kept clear. Cluttered or dark areas invite accidents.
2. Keep children and bystanders away while operating the pump. Distractions can cause loss of control.
3. Remember, the operator or user is responsible for accidents or hazards occurring to other people or their property.

## **PERSONAL SAFETY**

1. Always stay alert, watch what you are doing and use common sense when operating this pump. Do not install the pump while you are tired or under the influence of medication, drugs or alcohol. A moment of inattention can result in personal injury.
2. Do not over-reach. Keep your proper footing and balance at all times when positioning the pump.
3. Never direct the water discharge towards electrical wiring or equipment.
4. Always store the pump out of reach of children and do not allow persons unfamiliar with these instructions to operate it.
5. Never direct the discharge flow towards another person.
6. Always thoroughly familiarise yourself with this pump & its operation and follow all instructions in this manual.
7. Always ensure that the pump is properly positioned where necessary to prevent it from moving during operation, and that the immediate area surrounding the pump is kept clear.

## **GENERAL USE AND CARE OF THE PUMP**

1. An approved Residual Current Device (RCD) must be used when pumping from ponds or swimming pools.
2. Always lift the pump using the handle and use a rope or chain attached if necessary to lower it into the pit or excavation. Never lift or carry the pump by the power cable or by the float switch cable.
3. Never use this pump if any part is damaged. Have it inspected and repaired by your local Clarke dealer.
4. Always use an extension cable suitable for outdoor use when operating outdoors. Using the correct cable reduces the risk of electric shock.

5. Always maintain the pump with care and keep it clean.
6. Always use an approved cable extension suitable for the power rating of the pump (see specifications). The conductor size should also be at least the same size as that on the pump, or larger. When using a cable reel, always unwind the cable completely.
7. Never use for pumping flammable liquids or corrosive chemicals. These pumps are designed to pump water only.
8. Never abuse the electrical cable. Never use the cable for pulling or unplugging the pump. Damaged or tangled cables increase the risk of electric shock.
9. Never run the pump dry. Always ensure the pump is immersed in water before starting. Switch the pump OFF immediately the task is completed.
10. Never pump water from a swimming pool when there is a person or animal still in the pool.
11. Never install the pump on sand, silt or mud which is likely to shift or collapse.
12. Never modify this pump in any way. Use it only for the purpose for which it is designed.

## **SERVICING & REPAIRS**

1. Always have the pump serviced by your local CLARKE dealer, using only identical replacement parts. This will ensure the safety of the pump is maintained. The use of non standard parts could be hazardous.
2. Never attempt any repairs yourself. If you have a problem with the pump contact your local CLARKE dealer.
3. Always disconnect the pump from the electrical supply before placing it into, or removing from the water, and before any cleaning or maintenance.
4. If the power cable becomes damaged, it must be replaced rather than repaired.

Your CLARKE water pump has been designed to give long and trouble free service. If, however, having followed the instructions in this booklet carefully, you encounter problems, take the unit to your local CLARKE dealer.

Please keep these instructions in a safe place for future reference.

## ELECTRICAL CONNECTIONS



**WARNING! READ THESE ELECTRICAL SAFETY INSTRUCTIONS THOROUGHLY BEFORE CONNECTING THE PRODUCT TO THE MAINS SUPPLY.**

Before switching the product on, make sure that the voltage of your electricity supply is the same as that indicated on the rating plate. This product is designed to operate on 230VAC 50Hz. Connecting it to any other power source may cause damage.


This product may be fitted with a non-rewireable plug. If it is necessary to change the fuse in the plug, the fuse cover must be refitted. If the fuse cover becomes lost or damaged, the plug must not be used until a suitable replacement is obtained.

If the plug has to be changed because it is not suitable for your socket, or due to damage, it should be cut off and a replacement fitted, following the wiring instructions shown below. The old plug must be disposed of safely, as insertion into a mains socket could cause an electrical hazard.

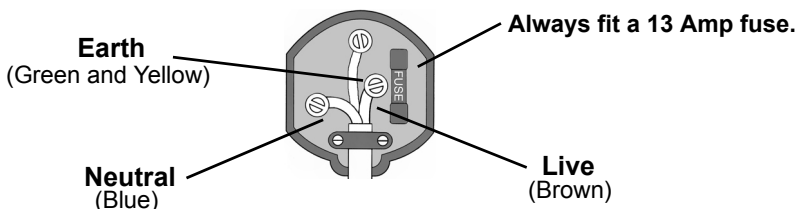


**WARNING! THE WIRES IN THE POWER CABLE OF THIS PRODUCT ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE: BLUE = NEUTRAL BROWN = LIVE YELLOW AND GREEN = EARTH**

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  or coloured **Green**.

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



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

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

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

---

## OVERVIEW

---



### SUITABILITY

The PSD1A submersible pump is suitable for discharging pools, ponds, fountains, pits and any waste water drainage. It can handle essentially clean water containing suspended material up to 0.5mm particles. The pump is not suitable for handling flammable, corrosive, explosive or dangerous liquids.

### THE FLOAT SWITCH

The float switch enables the pump to stop and restart automatically as the surrounding water level changes. As the water level rises, the switch will float and start the pump. As the water level falls, so will the float switch, until it stops the pump. Float switches are factory set to provide the correct ON-OFF switching mode. This makes them suitable for permanent or semi-permanent installations, eg. installations where it is necessary to maintain water at a particular level without an operator in attendance.

### THE THERMAL CUT-OUT

The pump is provided with a thermal overload cut-out, so that in the event that the pump becomes overheated (due to becoming blocked etc) it will shut off automatically. When the blockage has been cleared, the thermal cutout will cool down and re-set and the pump can be re-started.

## CONNECTION AND POSITIONING

1. Screw the outlet elbow and stepped adaptor supplied, onto the outlet of the pump as shown.

2. Connect the outlet adaptor to the largest diameter hose available, as any restriction will reduce capacity and put unnecessary strain on the motor.

- The stepped adaptor fitting allows for connection of 32 mm (1¼"), 25 mm (1"), or 19 mm hoses which should be secured with a hose clamp.



3. Ensure that the hose diameter is as large as possible if a long run of discharge hose is being used.

- Suitable hoses are available from your local Clarke dealer.

### POSITIONING THE PUMP

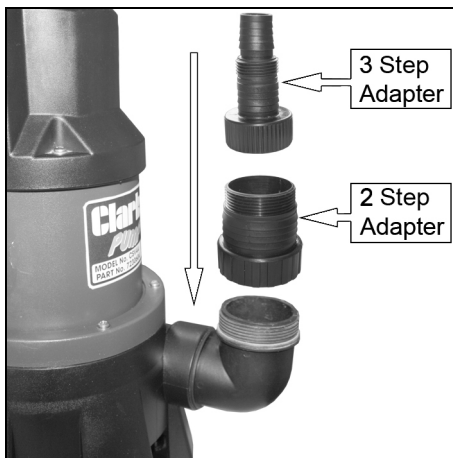
1. ALWAYS raise and lower the pump using a rope attached to the lifting handle.

2. Place the pump in a vertical position resting on a firm, flat surface in the area that you want to drain. If there is sediment in the operating area, the pump should be placed vertically on house bricks, or similar but ensure they are not likely to collapse. Never install the pump on sand, silt, mud or ground that is likely to collapse.

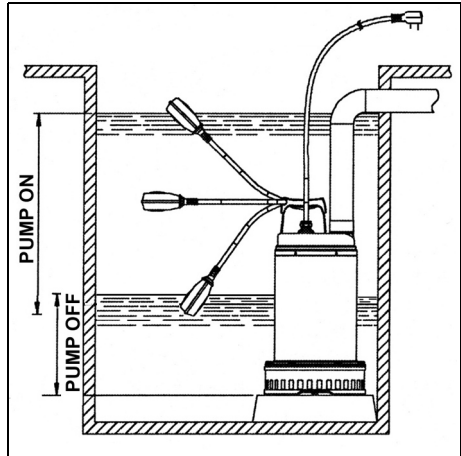
3. Keep the pump clear of sediment by standing it on a platform or brick or suspending from a rope attached to the handle if the pump is to be used where there may be silt or mud etc (e.g. garden ponds).

4. Ensure the pump is positioned with adequate space so that the movement of the float switch is not restricted - recommended minimum area of 50 x 50cm.

5. Allowance must also be made for the overall width of the pump including the outlet elbow on one side.



6. Ensure the float switch has sufficient room to operate correctly if used in a confined space such as a shaft or sump.
- The pump should only be placed in a sump which is large enough not to restrict the movement of the float switch.
  - When the pump is being used in a permanent or semi-permanent installation, a non-return valve should be fitted in the delivery hose. Suitable hoses and valves are available from your Clarke dealer.



---

## USING THE PUMP

---



**WARNING: CHECK THE PUMP FOR DAMAGE BEFORE USE, DO NOT USE THE PUMP IF IT IS DAMAGED IN ANY WAY.**

**WARNING: THE WATER BEING PUMPED WILL BE POLLUTED IF THIS PUMP BECOMES DAMAGED AND LUBRICANT WITHIN THE PUMP ESCAPES.**

---

1. Plug in the pump and switch on the power supply.
  - Always use a high sensitivity residual current device (RCD) which has a tripping current of less than 30mA.
  - The pump will only run where there is sufficient water for the float switch to rise and activate the pump.
2. If required, the range of operation of the float switch can be manually adjusted by positioning the float switch cable within the retaining clip at the top of the pump. The switch will operate through its full range if left hanging free.
3. Run the pump continuously or remove from the water and store in a frost free location if the water is likely to freeze.
4. Never run the pump dry. Ensure the pump switches off when water has stopped flowing.
  - The pump should be able to clear water down to a residual depth of approx 5mm, provided the float switch has been raised to keep the pump running. In this situation, air and residual water may be seen escaping from the vent valve.



5. Disconnect from the power supply when the water has been pumped out. Avoid running the pump continuously if the discharge hose has become obstructed and water is not flowing.

## **AUTOMATIC THERMAL OVERLOAD**

These pumps are fitted with automatic thermal overload protection. If the pump overheats due to an obstruction in the pump, or pumping warm water for example, it will shut off automatically.

Switch the pump OFF at the mains supply. Check for blockages and allow the motor to cool (at least 5 minutes) before attempting to restart, by which time the cut-out will have reset.

---

## **CLEANING, MAINTENANCE & STORAGE**

---



**WARNING: MAKE SURE THAT THE PUMP IS DISCONNECTED FROM THE POWER SUPPLY BEFORE CLEANING OR PERFORMING MAINTENANCE**

---

The pump requires no maintenance other than regular cleaning.

1. Inspect the pump prior to use and do not use the pump if there is any damage to the mains power cable or to the float switch or its connecting cable.
2. Check pump regularly to ensure the inlet is clear of leaves or other debris. It can be cleaned out either by back-flushing or by removing the base plate (after undoing the retaining screws) and cleaning out by hand.
3. If the pump has been used for pumping swimming pool water or salty water likely to leave chemical residues, it should be flushed through with clean water before storage.
4. When the pump is not being used for extended periods, clean and dry it thoroughly and store indoors. If the pump is left in water, it should be run at least once a week to prevent it from seizing up.

If the pump shows signs of wear or damage, contact your CLARKE dealer for advice. Do not attempt to repair the pump yourself, as you may damage the waterproof seals and invalidate your guarantee. Repairs should be carried out by your local CLARKE dealer, or contact the CLARKE Service Department on 020 8988 7400.

## **ACCESSORIES**

A wide range of accessories is available from your nearest CLARKE dealer, including hoses and hose adaptors.

# TROUBLESHOOTING

PROBLEM	SOLUTION
Pump hums but does not run	<ol style="list-style-type: none"> <li>1. Impeller partially clogged. Raise pump and clean. <ul style="list-style-type: none"> <li>• If pump is clear, motor could be defective.</li> </ul> </li> </ol>
Pump runs but does not deliver water or only delivers a small amount	<ol style="list-style-type: none"> <li>1. Check or non-return valve is installed backwards. Arrow on valve should point in direction of flow.</li> <li>2. Discharge shut-off valve if used, may be closed. Check that the outlet is not clogged or obstructed.</li> <li>3. Impeller partially clogged. Raise pump and clean.</li> <li>4. Air bubble in the pump, produced during immersion. immerse the pump again, at an angle, and shake it whilst lowering to remove any air trapped in the system.</li> <li>5. Inlet at base of pump is blocked. Raise pump and clear openings.</li> <li>6. Vertical pumping distance too high. Reduce height or change the pump discharge fitting.</li> <li>7. Impeller may be damaged - Consult your CLARKE dealer.</li> </ol>
Pump runs but will not stop	<ol style="list-style-type: none"> <li>1. Float switch may be prevented from moving to the fully down position.</li> <li>2. Faulty float switch. Consult your CLARKE dealer.</li> </ol>
Pump will not start	<ol style="list-style-type: none"> <li>1. Make sure that the power is switched on.</li> <li>2. Check fuse (consult an electrician if in doubt).</li> <li>3. If an extension lead is fitted, check connections (consult an electrician if in doubt).</li> <li>4. Internal thermal cut-out has not re-set. Leave for 5-10 minutes and try again.</li> <li>5. The impeller may be jammed. Disconnect from the mains supply and remove any objects that may be obstructing the impeller.</li> <li>6. Float switch may be jammed against side wall, or prevented from moving.</li> <li>7. If the pump still fails to start, consult your CLARKE dealer for advice.</li> </ol>

<b>PROBLEM</b>	<b>SOLUTION</b>
Fuse blows or circuit breaker trips when pump starts	<ol style="list-style-type: none"> <li>1. Motor may be defective.</li> <li>2. Fuse size is wrong or circuit breaker may be too small</li> <li>3. Pump clogged. Raise pump and clean impeller</li> </ol>
Pump stops running	<ol style="list-style-type: none"> <li>1. Thermal overload has operated. Leave for 5-10 minutes and try again.</li> <li>2. Pump has run dry, or float switch has cut in.</li> <li>3. A foreign object has jammed the impeller.</li> </ol>

---

## **SPECIFICATIONS**

---

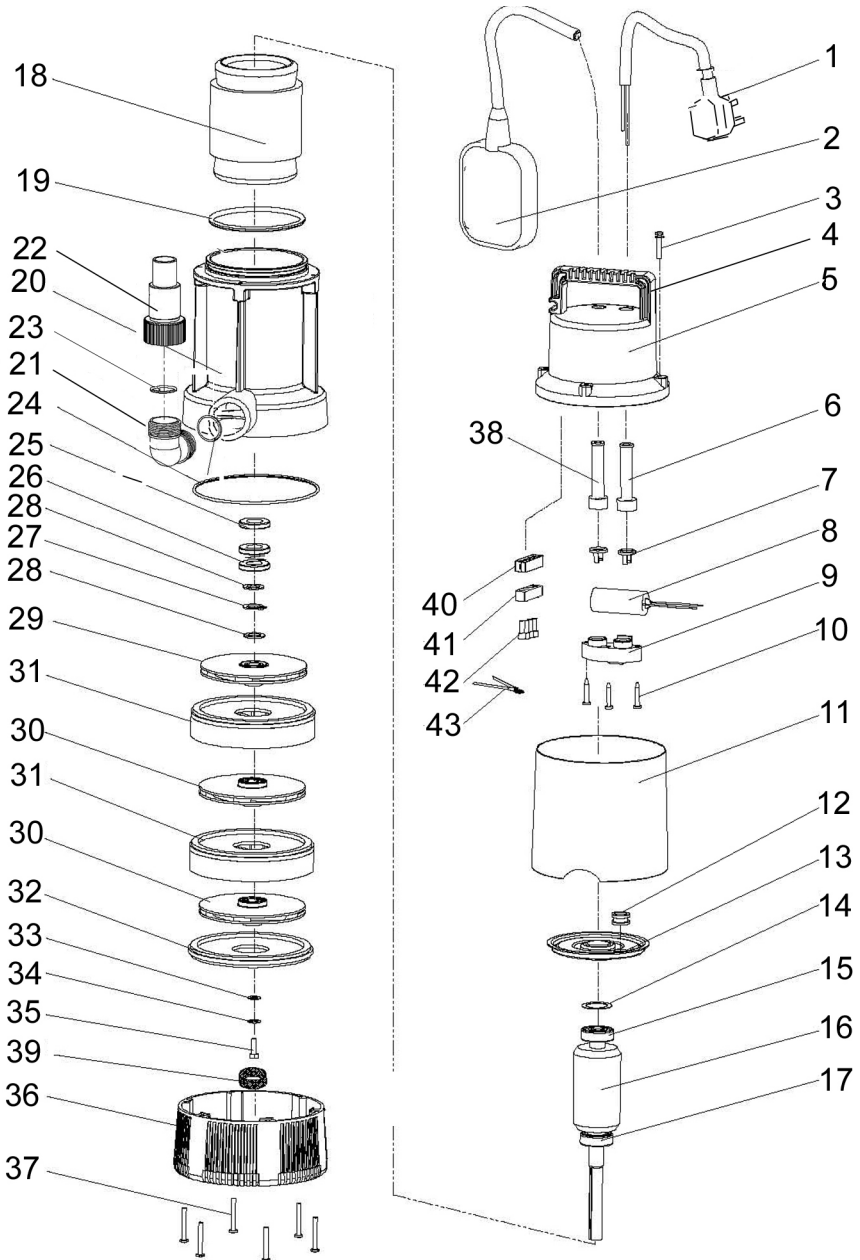
<b>Feature</b>	<b>Value</b>
Outlet Tread Dia	1¼" BSP
Outlet Size	34mm
Voltage	230V~50Hz
Motor Wattage at Max flow-rate	800 W
Fuse Rating	13 amp
Cable Length	10 m
IP Rating	IPX8
Maximum Head Height	30 m
Maximum Depth	7 m
Maximum Flow	91 l/min
Maximum Water Temperature	35°C
Maximum Particle Size	0.5 mm
Weight	7.2 kg

## PARTS LIST

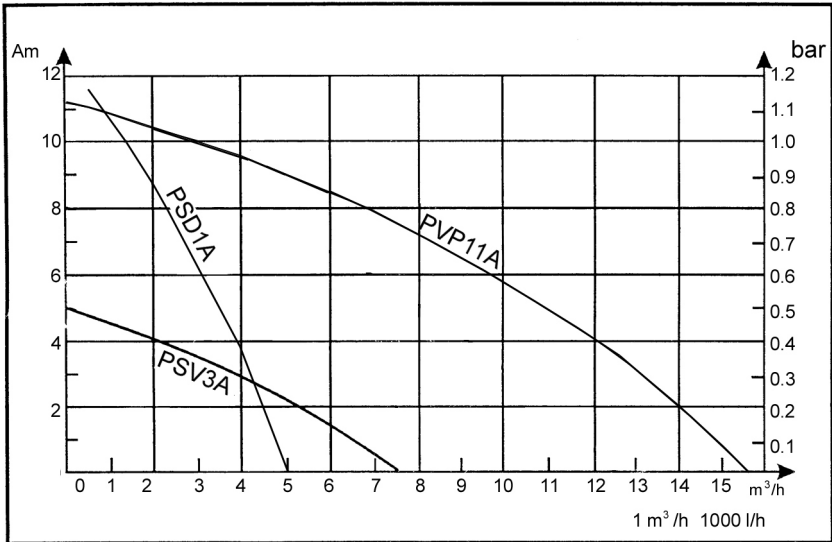
No	Description	No	Description
1	Power Cable	23	Outlet O-ring
2	Float Switch	24	O-ring Seal
3	3-point Self Tapping Screw	25	Frame Seal Ring
4	Handle	26	Mechanical Seal
5	Housing Cover	27	Retainer
6	Cable Entry Sheath	28	Shim Washer
7	Cable Holder Block	29	Upper Impeller
8	Capacitor 8uF	30	Lower Impeller
9	Cable Holder	31	Diffuser
10	Screw	32	Diffuser Plate
11	Stainless Steel Cover	33	Flat Washer
12	Gland	34	Washer
13	Rear Cover	35	Bolt
14	Wave Washer	36	Pump Base
15	Bearing	37	Screw
16	Motor Rotor	38	Cable Sheath
17	Bearing	39	Lower Sealing Pad
18	Stator	40	Connecting Block
19	O-ring Seal	41	Motor Brush
20	Motor Housing	42	Motor Clip
21	Elbow	43	Motor Fixing
22	Stepped Adaptor		

Part number = NJP-PSD1A-01 etc.

# PARTS DIAGRAM



# PUMP PERFORMANCE GRAPH



# DECLARATION OF CONFORMITY



**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 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 60335-1:2002+A1+A11+A12+A13, EN 60335-2-41:2003+A1, EN 62233:2008, EN 55014-1:2006,

EN 55014-2:1997+A, EN 61000-3-2:2006, EN 61000-3-3:1995+A1+A2.

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: 2008

**Product Description:** Submersible Pumps  
**Model number(s):** PSV3A,4A, PSSV2A, PVP11A, PSD1A  
**Serial / batch Number:** n/a  
**Date of Issue:** 30/10/2010

Signed:

J.A. Clarke  
Director

# A SELECTION FROM THE VAST RANGE OF

# Clarke®

## QUALITY PRODUCTS

### AIR COMPRESSORS

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

### GENERATORS

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

### POWER WASHERS

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

### WELDERS

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

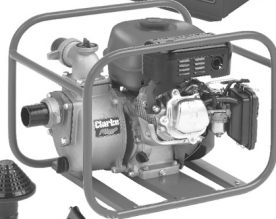
Submersible, electric and engine driven for DIY, agriculture and industry.

### POWERTOOLS

Angle grinders, cordless drill sets, saws and sanders.

### STARTERS/CHARGERS

All sizes for car and commercial use.



**PARTS & SERVICE: 0208 988 7400**  
E-mail: [Parts@clarkeinternational.com](mailto:Parts@clarkeinternational.com) or [Service@clarkeinternational.com](mailto:Service@clarkeinternational.com)  
**SALES: UK 01992 565333 or Export 00 44 (0)1992 565335**

**Clarke® INTERNATIONAL** Hemnall Street, Epping, Essex CM16 4LG  
[www.clarkeinternational.com](http://www.clarkeinternational.com)