

Clarke®



230MM (9") ANGLE GRINDER

MODEL NO: CAG2350

PART NO: 6470098

OPERATION & MAINTENANCE INSTRUCTIONS



LS0111

INTRODUCTION

Thank you for purchasing this CLARKE 230mm (9") Angle Grinder.

Before attempting to use this product, please read this manual thoroughly and follow the instructions carefully. In doing so you will ensure the safety of yourself and that of others around you, and you can look forward to your purchase giving you long and satisfactory service.

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.

IN THE BOX

- 1 x Angle Grinder
- 1 x Side Handle
- 1 x Pin Spanner & 6mm Allen Key
- 1 x Disc Guard and Fixings (Bolt & Nut)
- 1 x Pair of Flanges (Fitted)
- 1 x Metal Grinding Disc

ENVIRONMENTAL PROTECTION



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.

GENERAL SAFETY RULES

1) WORK AREA

1. **Keep the work area clean and well lit.** Cluttered and dark areas invite accidents.
2. **Do not 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.
3. **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

2) ELECTRICAL SAFETY

1. **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce the risk of electric shock.
2. **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
3. **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep the cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
4. **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.

3) PERSONAL SAFETY

1. **Stay alert, watch what you are doing and use common sense when operating a power tool.** Do not 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 personal injury.
2. **Use safety equipment. Always wear eye protection.** Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.
3. **Avoid accidental starting.** Ensure the switch is in the off position before plugging in. Carrying power tools with your finger on the switch or plugging in power tools that have the switch on invites accidents.
4. **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.
5. **Do not overreach.** Keep proper footing and balance at all times. This enables better control of the power tool in unexpected situations.
6. **Dress properly.** Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewellery or long hair can be caught in moving parts.

4) POWER TOOL USE AND CARE

1. **Do not 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 which it was designed.
2. **Do not use the power tool if the switch does not turn it on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
3. **Disconnect the plug from the power source before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.
4. **Store idle tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.
5. **Maintain power tools.** Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tools operation. If damaged, have the power tool repaired before use. Many accidents are caused by poorly maintained power tools.
6. **Keep cutting tools sharp and clean.** Poorly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
7. **Use the power tool, accessories and tool bits etc., in accordance with these instructions and in the manner intended for the particular type of power tool, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from intended could result in a hazardous situation.

5) SERVICE

1. **Have your power tool serviced by a qualified service personnel using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.

ANGLE GRINDER SAFETY INSTRUCTIONS

1. **Before starting work, always consider the following:** The use of hand held angle grinders for grinding and cutting operations can present risks to the user. Full observation of the safety instructions in this user guide is essential.
2. **Before undertaking grinding or cutting operations, always consider the following:** Is the grinding/cutting work necessary? Could a different tool be used with less risk? (e.g. a fixed controlled cutting/grinding machine). Can the work be sensibly positioned, secured and accessed so the operator can maintain adequate control of the tool, taking into account, for example the possible hazards associated with potential snatch/jamming of a cutting disc. Is the cutting task too large for a hand held tool? If in doubt, use an alternative lower risk solution or refer to qualified trade personnel.
3. **Always use the correct tool for the job.** Always assess the job. You should never force a small angle grinder to do the job of a heavy tool. Do not use tools for purposes not intended.
4. **Store power tools properly when not in use.** Abrasive products should be stored in a dry, secure place out of the reach of children.

5. **Start up speed.** Always allow the angle grinder to run up to full operating speed before applying it to the job.
6. **Avoid operator fatigue.** Stop the angle grinder at regular intervals for a short break to rest hands and arms.
7. **Applying the disc to the workpiece.** Never bump the angle grinder disc on the workpiece, or let the disc hit any other objects while grinding.
8. **Dust masks.** Always wear a dust mask when operating this angle grinder.
9. **Do not abuse the mains lead.** Never carry the tool by the mains lead or pull it to disconnect it from the mains socket. Keep the mains lead away from heat, oil and sharp edges.
10. **Secure the work.** Use clamps, or vices to hold the workpiece. Failure to secure the workpiece could result in serious injury.
11. **Maintain your tools.** Keep all handles and grips dry and clean.
12. **Remove adjusting keys and wrenches.** Form the habit of checking to see that keys and adjusting wrenches are removed from the tool before turning it on.
13. **Avoid unintentional starting.** Never carry a plugged in tool with a finger on the switch. Ensure that the tool is switched off when plugging in to the mains supply.
14. **Use outdoor extension leads.** When the tool is used outdoors, only use extension leads intended for outdoor use. Always make sure that the extension lead is correctly rated.
15. **Check damaged parts.** A guard or other parts that are damaged should be properly repaired or replaced, by an authorised service centre, unless otherwise indicated in this user guide. Have defective switches replaced by an authorised service facility.
16. **Accessories. Only use the recommended accessories.** Ensure that the wheels and discs are fitted in accordance with the manufacturer's instructions.
17. **Only use discs that comply with EN12413 or EN13236.** Make sure that the disc used is suitable for the no load speed of the angle grinder. See Specifications on page 16. Check that the speed marked on the wheel dimensions are compatible with the grinder. Check that discs are specifically for hand held angle grinder use.
18. **Sparks and particles.** Ensure that sparks and particles resulting from use do not create a hazard, Use screens where appropriate.
19. **Personal protective equipment.** Always use protective safety glasses and hearing protectors. Use other protective equipment such as gloves, apron and helmet where necessary. If working at floor level, always wear knee pads.
20. **Switching off.** The disc will continue to rotate for a few seconds after the angle grinder is switched off. Always wait until the disc has completely stopped before putting the angle grinder down.
21. **Use the disc guard.** Do not use the angle grinder without the disc guard. Make sure that the guard is securely fitted before operating the angle grinder.
22. **Holding the angle grinder.** Always hold the angle grinder with both hands. Ensure that the workpiece is kept at waist height where possible. Never use the angle grinder between the legs whilst sitting on the floor.
23. **Feed direction.** For cutting, always feed the disc into the work so that an upcutting action is achieved.
24. **Spindle lock.** Do not operate the spindle lock while the spindle is still spinning.

DISC SAFETY INSTRUCTIONS

1. **Disc speed.** Check the speed of the disc before fitting to your angle grinder. Never use a disc with a rpm speed less than the rpm speed of your angle grinder.
2. **Inspect the disc before fitting.** Never use a disc that is chipped, cracked or damaged. Fragments from a broken or damaged disc can cause serious injury. Make sure that defective discs are destroyed and not used.
3. **Handling and mounting discs.** Bonded abrasive products are breakable and shall therefore be handled with utmost care. The use of damaged or improperly mounted or used abrasive products is dangerous and can cause serious injuries.
4. **Disc usage.** Always refer to the label for specified usage and observe the safety information. Do not use for purposes other than specified. Discs for wet cutting applications must not be used with this angle grinder.
5. **Use the correct disc.** Always use the correct disc for it's intended task. Using the incorrect disc can cause serious injury.
6. **Using the disc.** Allow the disc and tool to do the work. Never force the disc onto the workpiece as this could cause kickback and/or shatter the disc causing serious injury. Kickback can occur in the event of a disc jam.
7. **Cutting discs.** Do not use cutting discs for side grinding. Do not put sideways pressure on cutting discs.
8. **Do not use reducing bushes.** Do not use separate reducing bushes or adapters to adapt large hole abrasive wheels. Do not force a disc onto a machine or alter the size of the arbor hole.
9. **Handling and storing discs.** Abrasive products shall be handled and transported with care. Abrasive products shall be stored in such a manner that they are not subjected to mechanical damage and harmful environmental influences. It is recommended that discs are stored in the case provided to protect them from damage and hazardous material.

SAFETY SYMBOLS



Wear ear protection



Wear eye protection



Not suitable for wet grinding



Read instruction manual before use

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.

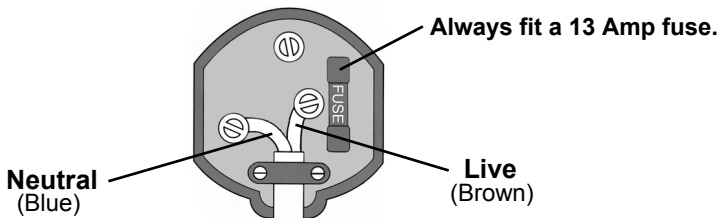


**WARNING! The wires in the power cable of this product are coloured in accordance with the following code:
Blue = Neutral Brown = Live**

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**.

Plug must be BS1363/A approved.



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

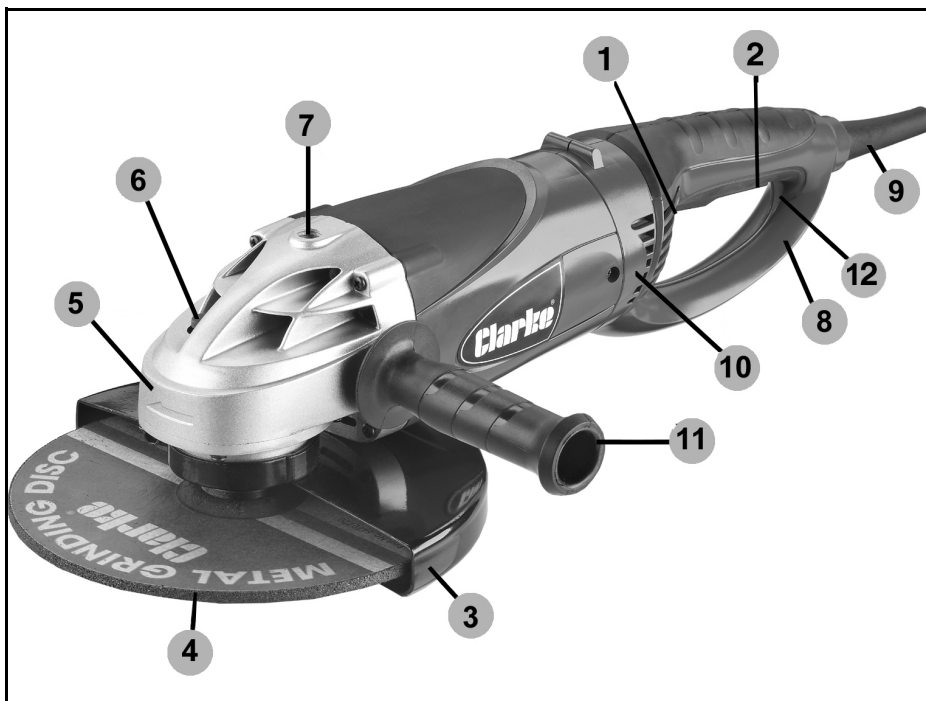
We strongly recommend that this machine is connected to the mains supply via a Residual Current Device (RCD)

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



This symbol indicates that this is a Class II product, and does not require an earth connection.

OVERVIEW



NO	DESCRIPTION	NO	DESCRIPTION
1	Lock Off Lever	7	Threaded hole (for the side handle)
2	On/Off Trigger Switch	8	Rear Handle
3	Disc Guard	9	Mains Lead
4	Grinding/Cutting Disc	10	Air Vents
5	Direction of Rotation Indicator	11	Side Handle
6	Spindle Lock Button	12	Rear Handle Release

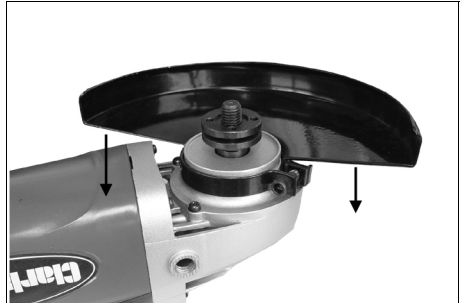
BEFORE USE

FITTING / ADJUSTING THE DISC GUARD



WARNING: MAKE SURE THAT THE ANGLE GRINDER IS SWITCHED OFF AND UNPLUGGED FROM THE MAINS SUPPLY BEFORE FITTING OR REMOVING ANY ACCESSORIES.

1. Slide the disc guard into place as shown.



2. Rotate the disc guard to the required position and secure by tightening the cap head screw using the hexagonal key supplied.



WARNING: THE DISC GUARD SHOULD BE FITTED SO THAT IT PROVIDES MAXIMUM PROTECTION TO THE USER WHEN IN THE WORKING POSITION.

3. Make sure that the disc guard is securely fitted before using the grinder.

FITTING AND REMOVING A DISC

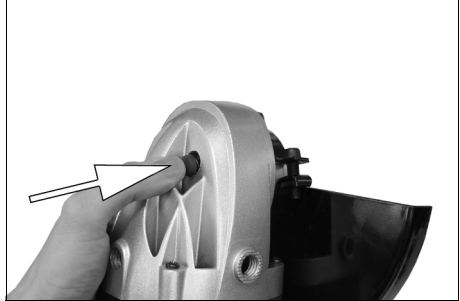


WARNING: MAKE SURE THAT THE ANGLE GRINDER IS SWITCHED OFF AND UNPLUGGED FROM THE MAINS SUPPLY BEFORE FITTING OR REMOVING ANY ACCESSORIES.

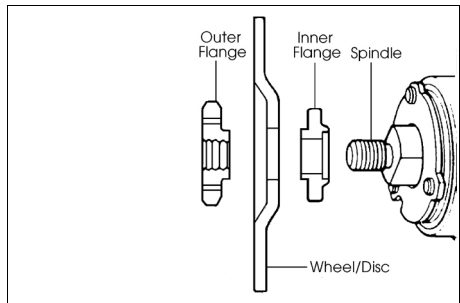
1. Make sure the disc guard is fitted before you fit any cutting/grinding disc.
2. Press and hold the spindle lock as shown on the right.

NOTE: You may need to turn the spindle by hand to fully engage the spindle lock.

3. Use the pin spanner supplied to remove the outer flange.
4. Make sure that the inner flange is fitted correctly with the raised circular section pointing outwards as shown and the flat section on the opposite side engages with the flat section on the spindle.



5. Place the grinding disc over the spindle and on top of the inner flange.
 - Place the disc onto the spindle as shown.
 - Make sure that the disc is properly located on the inner flange.



6. Place the outer flange over the spindle
 - For standard discs make sure that the raised section of the outer flange is pointing towards the disc.
 - When using thin discs, the outer flange washer can be reversed so that the raised section is pointing away from the disc.
7. Press and hold the spindle lock and use the pin spanner to tighten the outer flange.

FITTING THE SIDE HANDLE

1. Fit the side handle by screwing it into one of the 3 threaded holes on the angle grinder.



ADJUSTING THE REAR HANDLE

The rear handle can be rotated to give a more comfortable grip.

1. Push and hold the rear handle release backwards with one hand.
2. Twist the rear handle in 90 degree steps and release the rear handle release button. The handle will only turn a maximum of 180 degrees.



USING YOUR ANGLE GRINDER



WARNING: FRAGMENTS FROM A BROKEN/DETACHED DISC CAN CAUSE SERIOUS INJURY.

WARNING: WHEN USING CUTTING DISCS, DO NOT STAND DIRECTLY IN LINE WITH THE ROTATING DISC.

WARNING: DO NOT PUT SIDEWAYS PRESSURE ON CUTTING DISCS.

WARNING: ENSURE THAT THE WORKING POSITION ADOPTED DOES NOT CAUSE OPERATOR FATIGUE WHICH MAY LEAD TO LOSS OF CONTROL OF THE CUTTING DISC AND IMPACT/SNATCH WITH SURROUNDING OBJECTS/MATERIALS.

WARNING: ENSURE THE INTENDED CUTTING PATH IS CLEAR AND WITH SUFFICIENT CLEARANCE BETWEEN SURROUNDING OBJECTS.

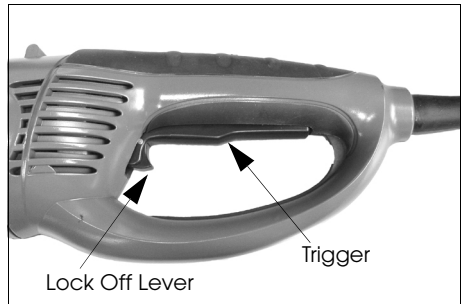
WARNING: WHEN CUTTING, KEEP THE ANGLE GRINDER STRAIGHT TO PREVENT SNATCHING OR JAMMING.

THE ON/OFF SWITCH

1. To start the angle grinder, slide the Lock Off Lever forwards and squeeze the trigger upwards.

NOTE: The angle grinder has a soft start feature and will reach full speed in around 3 seconds.

2. To stop the angle grinder, release the trigger.



WARNING: THE DISC WILL CONTINUE TO ROTATE FOR A FEW SECONDS AFTER THE TRIGGER HAS BEEN RELEASED.

CUTTING TIPS

- Do not force the disc through the material. Work with a feed rate that is suited to the material being cut.
- Do not subject the cutting disc to sideways pressure.
- The direction of the cutting motion is important. Always feed the cutting disc into the work so that it cuts in an upward direction. If you do not do this it can result in the disc climbing out of the cut in an uncontrolled manner and may lead to loss of control or serious injury.

GRINDING TIPS



WARNING: WHEN GRINDING, ONLY USE DISCS SPECIFICALLY DESIGNED FOR GRINDING. YOU MUST NEVER USE CUTTING DISCS TO GRIND ANY MATERIAL.

- The key to efficient grinding is to control the pressure and surface contact between the grinding disc and the workpiece.
- Flat surfaces are ground at an acute angle, usually 15 to 30 degrees to the workpiece. Too great an angle causes concentration of pressure on a small area which may gouge, or burn the workpiece.
- Allow the disc to reach full speed before grinding.
- Avoid overloading the angle grinder. If it becomes hot when being used, allow it to run for a few minutes under no-load conditions.

MAINTENANCE

CHANGING THE CARBON BRUSHES

1. Remove the screw holding the brush cover in place.
2. Remove the worn brush.
3. Replace with the new brush supplied.
4. Repeat on the other side of the body.
 - Both brushes must be replaced at the same time



CLEANING

- To maintain the best possible performance from your angle grinder, it must be kept clean.
- To reduce fire hazard, keep the cooling vents free of debris.
- Clean the area around the spindle and mounting washer and keep the threaded locking washer clean.

GENERAL MAINTENANCE

- Make sure that all nuts, bolts and screws are tight and secure.
- Check the secondary handle and the guard for damage.
- Always have any damaged, or worn parts repaired, or replaced.
- Always have your angle grinder inspected and maintained by qualified service personnel. Do not attempt to repair the angle grinder unless you are qualified to do so.

SPECIFICATIONS

Model Number	CAG2350
Rated Voltage (V)	230 V
Input Power	2350 W
No Load Speed	6000 rpm
Disc Diameter	230 mm
Disc Bore	22 mm
Spindle Thread Size	M14
Guaranteed Sound Power (L _{wa} dB)	110
Vibration Levels	3.82 m/s ²
Dimensions (L x W x H)	560 x 310 x 136 mm
Weight	5.4 kg

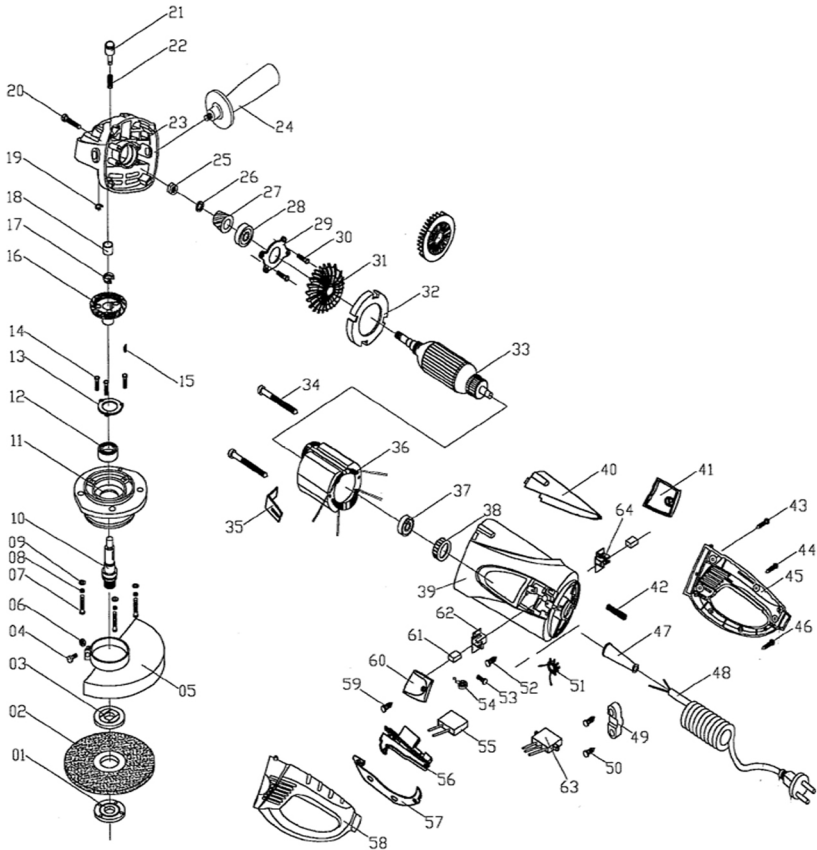
PARTS AND SERVICING

There are no user serviceable parts in this angle grinder, all servicing and repairs should be carried out by your nearest Clarke dealer.

For Parts & Servicing, please contact your nearest dealer, or CLARKE International, on one of the following numbers.

PARTS & SERVICE TEL: 020 8988 7400
PARTS & SERVICE FAX: 020 8558 3622
or e-mail as follows:
PARTS: Parts@clarkeinternational.com
SERVICE: Service@clarkeinternational.com

OVERVIEW



PARTS LIST

NO	DESCRIPTION	PART NUMBER	NO	DESCRIPTION	PART NUMBER
1	Outer Flange	KPCON260001	33	Rotor	KPCON260033
2	Grinding Disk	KPCON260002	34	Barrel Head Screw	KPCON260034
3	Inner Flange	KPCON260003	35	Stator Pressure Plate	KPCON260035
4	Hexagon Socket Head Bolts	KPCON260004	36	Stator	KPCON260036
5	Guard	KPCON260005	37	Bearing	KPCON260037
6	Guard Screw	KPCON260006	38	Bearing Ring	KPCON260038
7	Barrel Head Screw	KPCON260007	39	Casing	KPCON260039
8	Elastic Washer	KPCON260008	40	Label	KPCON260040
9	Flat Washer	KPCON260009	41	Right Cover	KPCON260041
10	Spindle	KPCON260010	42	Reset Spring	KPCON260042
11	Front Cover	KPCON260011	43	Barrel Head Screw	KPCON260043
12	Bearing	KPCON260012	44	Barrel Head Screw	KPCON260044
13	Bearing Pressure Cover	KPCON260013	45	Right Handle	KPCON260045
14	Barrel Head Screw	KPCON260014	46	Barrel Head Screw	KPCON260046
15	Circular Key	KPCON260015	47	Sheath	KPCON260047
16	Big Gear	KPCON260016	48	Cable	KPCON260048
17	External Circlip	KPCON260017	49	Cable Pressure Plate	KPCON260049
18	Porous Bearings	KPCON260018	50	Barrel Head Screw	KPCON260050
19	Open Shield Ring	KPCON260019	51	Inductance	KPCON260051
20	Barrel Head Screw	KPCON260020	52	Barrel Head Screw	KPCON260052
21	Self Lockpin	KPCON260021	53	Barrel Head Screw	KPCON260053
22	Self Lockpin Spring	KPCON260022	54	Spiral Spring	KPCON260054
23	Gear Case	KPCON260023	55	Capacitor	KPCON260055
24	Side Handle	KPCON260024	56	Switch	KPCON260056
25	Hexagon Nut	KPCON260025	57	Tie Rod	KPCON260057
26	Elastic Washer	KPCON260026	58	Left Handle	KPCON260058
27	Small Gear	KPCON260027	59	Barrel Head Screw	KPCON260059
28	Bearing	KPCON260028	60	Left Cover	KPCON260060
29	Bearing Pressure Cover	KPCON260029	61	Carbon Brush	KPCON260061
30	Barrel Head Screw	KPCON260030	62	Carbon Brush Support	KPCON260062
31	Fan	KPCON260031	63	Soft Start	KPCON260063
32	Fan Baffle	KPCON260032	64	Carbon Brush Support	

DECLARATION OF CONFORMITY



Clarke[®]
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.*
- 2006/42/EC *Machinery 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 60745-1:2006, EN 60745-2-3:2007, EN 55014-1:2006, EN 55014-2:1997+A1, 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: Angle Grinder 2350W
Model number(s): CAG2350
Serial / batch Number: n/a
Date of Issue: 24/09/2010

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

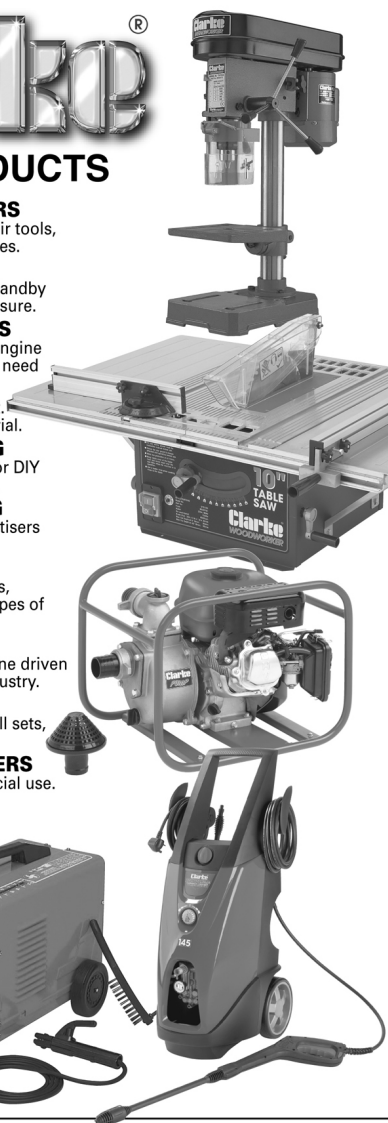
Submersible, electric and engine driven for DIY, agriculture and industry.

POWER TOOLS

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 or 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