

# Champro®



## 24V DC - 1/2" SQUARE DRIVE IMPACT WRENCH KIT

Model No: CIR220

Part No 4500635

### OPERATING & MAINTENANCE INSTRUCTIONS



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# INTRODUCTION

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Thank you for purchasing this CLARKE Impact Wrench.

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 product giving you long and satisfactory service.

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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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## TECHNICAL SPECIFICATION

Feature	Specification
Dimensions (l x w x h)	246 x 97x 255 mm
Max bolt diameter	M14
Max tightening torque	220Nm
Impacts per minute	2700
Input voltage	230V/50Hz
Output voltage	DC-24V
Battery type	Nickel-Cadmium
Battery pack capacity	1.3 Amp/hr
Sound power level (Lp)	96 dB(A)
Sound pressure (Lw)	85 dB(A)
Sound power level guaranteed	99 dB(A)
Vibration level	11.4 m/s <sup>2</sup>
Uncertainty Factor	1.5 m/s <sup>2</sup>

Please note that 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.

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# SAFETY PRECAUTIONS

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**WARNING: READ ALL INSTRUCTIONS. FAILURE TO FOLLOW ALL INSTRUCTIONS LISTED BELOW MAY RESULT IN ELECTRIC SHOCK, FIRE AND /OR SERIOUS INJURY. THE TERM "POWER TOOL" IN ALL WARNINGS REFERS TO YOUR CIR220 IMPACT WRENCH.**

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## WORK AREA

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

## ELECTRICAL SAFETY

- a. **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges or refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- b. **Do not expose power tools to rain or wet conditions.** Any water entering power tools will increase the risk of electric shock.
- c. **When operating a power tool outdoors, use an extension cable suitable for outdoor use.** Use of a cable suitable for outdoor use reduces the risk of electric shock.

## PERSONAL SAFETY

- a. **Stay alert, watch what you are doing and use common sense when you are operating a power tool.** Do not operate a power tool when you are tired, ill or under the influence of alcohol, drugs or medication. A moment of inattention while operating a power tool may result in personal injury.
- b. **Use safety equipment. Always wear eye protection.** Safety equipment such as a dust mask, non-skid shoes or hearing protection used for appropriate conditions will reduce personal injuries.
- c. **Avoid accidental starting.** Ensure the switch is in the off position before plugging the machine in to the power supply.
- d. **Do not over-reach.** Keep your proper footing and balance at all times. This enables better control of the power tool in unexpected situations.

- e. **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 on moving parts.

## POWER TOOL USE AND CARE

- a. **Do not force the power tool.** Use the correct power tool for your application. The correct power tool will do a better and safer job at the rate for which it was designed.
- b. **Do not use the power tool if the trigger does not turn it on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- c. **Disconnect the battery before making any adjustments, changing accessories, or storing power tools.** Such preventive measures reduce the risk of starting the power tool accidentally.
- d. **Store idle tools out of the reach of children and do not allow persons unfamiliar with these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.
- e. **Maintain power tools.** Check for misalignment or binding of moving parts, broken parts, or any 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.
- f. **Use the power tool and accessories 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.

## BATTERY TOOL USE AND CARE

- a. Recharge only with the charger specified by the manufacturer. A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.
- b. Use power tools only with specifically designed battery packs. Use of any other battery pack may create a risk of fire when used with another battery pack.
- c. When the battery pack is not in use, keep it away from other metal objects, like paper clips, coins, keys, nails, screws or other small metal objects that can make a connection from one terminal to another. Shorting the battery terminals together may cause burns or a fire.
- d. Under abusive conditions, liquid may be ejected from the battery: avoid contact. If contact accidentally occurs, flush with water. If liquid contacts the eyes additionally seek medical help. Liquid ejected from the battery may cause irritation or burns.

## IMPACT WRENCH SAFETY INSTRUCTIONS

- a. ALWAYS use the impact wrench in the manner and for the functions described in these instructions.
- b. ALWAYS ensure the impact wrench is not moving with the switchbar in the centre position when changing sockets etc.
- c. Use only impact wrench sockets. DO NOT use standard sockets.
- d. ALWAYS finish tightening wheel nuts or engine parts with a torque wrench or suitable spanner to the correct torque as recommended by the vehicle manufacturer.
- e. ALWAYS avoid excessive use of the wrench. When tightening a nut or bolt, never allow the wrench to impact more than 7 or 8 times - to avoid over tightening - 3 to 4 impacts is normally sufficient.

## SERVICE

- a. **When necessary, have your power tools serviced or repaired by a qualified person using identical replacement parts.** This will ensure that the safety of the power tool is maintained.

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

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## SAFETY SYMBOLS

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The full technical specification of the battery charger is printed on a label on the charger.

**The meanings of the markings and symbols on the charger are shown below:**



Class II appliance which does not need an earth connection.



Read the instructions before using the equipment.



The equipment falls under the Waste Electrical & Electronic Equipment directive (WEEE). Do not dispose of with household rubbish.



For indoor use only.



T 130 C

This charger is fitted with a thermal cutout at 130°C.



Do not immerse in water or expose it to rain or moisture.



This charger is fitted with an isolating safety transformer.

**The warning symbols attached to the battery pack are as follows;**



Do not immerse in water or expose it to rain or moisture.



Do not allow this product to be subject to fire/incineration.



NiCd

This battery contains nickel cadmium and must be disposed of correctly.



MAX 40°C

Do not expose this battery to temperatures over 40°C.

**The warning symbols attached to the impact wrench are as follows;**



Read the instructions before using the equipment.



This equipment falls under the Waste Electrical & Electronic Equipment directive (WEEE). Do not dispose of with household rubbish.



24V DC Current

# ELECTRICAL CONNECTIONS



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

This product battery charger is provided with a standard 13 amp, 230 volt (50Hz), BS1363 plug for connection to a standard domestic electrical supply. Should the plug need to be changed at any time, ensure that a plug of identical specification is used.

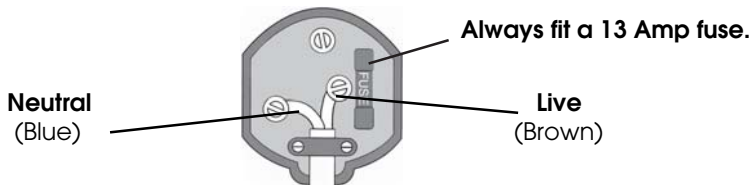


**WARNING! THE WIRES IN THE POWER CABLE OF THIS PRODUCT ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE:  
BLUE = NEUTRAL      BROWN = LIVE**

If the colours of the wires in the power cable of this product do not correspond with the terminal markings 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 product is connected to the mains supply via a Residual Current Device (RCD).**

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



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



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## COMPONENT INVENTORY

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The CIR220 is a cordless impact wrench which is rechargeable using the mains power adaptor.

Upon receipt, check the components against the following list. Any damage or deficiency should be reported to your CLARKE dealer immediately.

- 1 x 24V Impact Wrench
- 2 x 24V Battery Packs
- 1 x Charger, Class II insulated (Double Insulated)
- 1 x 17mm Impact Socket, Chrome Vanadium, black
- 1 x 19mm Impact Socket, Chrome Vanadium, black
- 1 x 21mm Impact Socket, Chrome Vanadium, black
- 1 x 23mm Impact Socket, Chrome Vanadium, black
- 1 x Moulded Carry Case

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## COMPONENT IDENTIFICATION

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1. 1/2" Square Socket Drive
2. Ventilation Slots
3. Switch-bar (Forward/Reverse)
4. Variable Speed Trigger Switch
5. Battery Release Button
6. Battery Pack



# BATTERY CHARGING

The new battery pack will require charging before use.

1. Squeeze the battery release buttons on either side of the battery pack and pull gently down to disengage the battery pack from the wrench.
2. Insert the battery pack into the charger, as shown, noting it will only fit one way.
3. Plug the charger into a 230V (mains) power supply and switch ON.
  - The green light illuminates to show the unit is connected to the mains supply. The red light illuminates when the battery is placed into the charger and remains illuminated until the battery is charged. When the battery is charged, the red light goes out and the green light illuminates.
  - If charging does not take place, ensure all connections are clean and free of grease etc.
  - A new battery pack may initially not accept full charge. This is common and does not indicate a fault. It can be recharged fully after it has been discharged approximately five times.
4. The red charging light should remain on for about 1 hour during charging, thereafter the green light comes back on and the battery cartridge may be removed and used.
5. After charging, switch off and unplug the charger from the power supply.
6. Remove the battery pack from the charger and slide it back into the wrench until it clips into place. The battery pack should slide in easily. If the battery pack is not to be fitted immediately, ensure that the metal contacts are protected so as to avoid the possibility of a short circuit which would cause damage.
7. For maximum battery life, we recommend that you maintain the battery in a fully charged state at all times.
  - Remember to avoid extremes of heat or cold when charging. Avoid temperatures outside the range of Minimum 4°C /Maximum 50°C. Avoid placing batteries in direct strong sunlight or other heat source.



**NOTE: Ni-Cad batteries as used in Clarke cordless power tools should be given a full charge when first supplied new. Maximum battery performance will be achieved after approximately 5 complete charge/discharge cycles.**

- The battery should be fully discharged before recharging in order to achieve its optimum performance. Constant topping up after only a small amount of charge has been used will, in effect, reduce its capacity.
- Ni-Cad batteries will slowly lose their power whilst in storage. Do not leave the batteries in this state for any length of time.

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## OPERATION

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**ALWAYS BE SURE THAT THE TOOL IS SWITCHED OFF BEFORE ATTACHING OR REMOVING A SOCKET. ALWAYS TAKE CARE TO USE THE CORRECT SIZE SOCKET FOR BOLTS AND NUTS. AN INCORRECT SOCKET WILL CAUSE DAMAGE TO THE BOLT OR NUT.**

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1. Align the chosen socket and simply push it onto the anvil. Use only ½" square drive impact sockets supplied or as listed on page 13.
2. Squeeze the trigger to start the wrench. Release the trigger to stop.
3. To run the impact wrench in reverse, push the switch-bar through the drive unit. The direction of rotation is shown on the end face of the switch-bar.
  - The switchbar selects the forward or reverse direction of rotation. Do not move the switch-bar when the spindle is moving. When the switch-bar is in the central position the trigger is locked.
4. Always check the direction of rotation before operation.
5. Turn off the wrench as soon as the impact sound is heard.

**Note: As the battery becomes discharged, the power available will drop. Operating the machine at low speed will cause a reduction in torque.**

6. When discharged, recharge the battery pack as on page 10.

## LOOSENING A WHEEL NUT

1. Remove any wheel trim, before selecting the appropriate socket and placing firmly on the square drive of the wrench.
2. With the switchbar in the REVERSE running position, and holding the wrench firmly in BOTH HANDS, pull the trigger. The nut will be impacted repeatedly until it is loosened. **IMPORTANT!** Release the trigger immediately when the nut begins to loosen.
3. Jack up the vehicle according to the vehicles handbook so that the wheel is clear of the ground, then proceed to fully undo the wheel nuts.

## TIGHTENING A NUT

1. Start the nut by hand, ensuring it is not cross threaded, then with the appropriate socket installed on the wrench, place it on the nut.
2. With the FORWARD/NEUTRAL/REVERSE switch-bar in the forward running position, and holding the wrench firmly in BOTH HANDS, pull the trigger.
3. Run each nut up in turn until it is 'nipped' up only - do not tighten. When all nuts are nipped up, tighten progressively by pulling the trigger fully and allowing the action to operate for **only** 3 to 4 impacts to prevent overtightening.
4. ALWAYS finish tightening with a torque wrench. The weight of the vehicle will need to be placed on the wheel to prevent it from rotating while the nuts are tightened. Ensure the final torque applied to the nuts meets the vehicle manufacturers recommendations.

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## MAINTENANCE

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1. Ensure all fixings remain tight to ensure the machine is in safe working condition.
  2. Check the battery charger power cable to ensure it is free from cracks, bare wires etc.
  3. Avoid using solvents when cleaning plastic parts, most plastics are susceptible to damage from the various types of commercial solvents. Keep the unit clean by wiping with a dry cloth.
- All bearings etc, in this machine are lubricated with a sufficient amount of high grade lubricant for the machines lifetime under normal operating conditions, therefore no further lubrication is required.
  - Refer to your CLARKE dealer if internal maintenance is required.
  - Your Clarke impact wrench 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.

## STORAGE

- Make sure that the machine is stored in a clean, dry place, out of reach of children when not in use.
- Always store the machine and its charger in the case supplied.

## 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.

## BATTERY DISPOSAL



Dispose of old batteries in accordance with local authority regulations. Do not incinerate or crush, as this will increase the risk of explosion and contamination. If the battery contents come into contact with skin or the eyes, rinse with clean water for several minutes and seek medical advice immediately afterwards.

## ACCESSORIES

A wide range of accessories is available from your nearest CLARKE dealer, for further information, contact your nearest dealer, or telephone CLARKE International Sales department on 01992 565300.

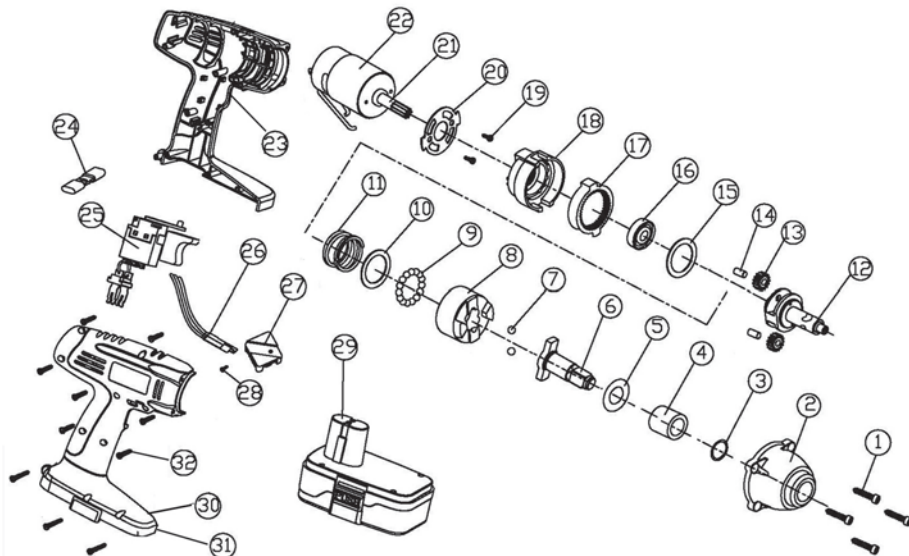
Suitable Impact Wrench compatible socket sets include the following:

3110437	CAT37B	11 piece 1/2"square drive(metric)
1800310	CIS12/17	17 piece 1/2"square drive(metric/AF)
1800305	CIS9/32	32 piece 3/8" & 1/2"square drive (metric/AF)
1800345	CIS12/7M	7 piece 1/2"square drive universal joint (metric)
1800350	CIS12/7MD	7 piece 1/2"square drive universal joint (deep) metric
1800355	CIS12/6H	6 piece 1/2"square drive hex key set (metric)
1800360	CIS12/6S	7 piece 1/2"square drive TRX-Star

# PARTS DIAGRAM

No	Description	Part No
1	Screw st 5x20	500200
2	Gear Casing	234024
3	O-ring	320013
4	Shaft Sleeve	205522
5	Small Washer	221239
6	Outer Shaft	213728
7	Steel ball 5.5 dia	516005
8	Clutch	215506
9	Steel Ball 4 dia	516000
10	Washer	221241
11	Spring	241534
12	Inner Shaft	213711
13	Planetary Gear	200028
14	King-pin	514021
15	Washer	221240
16	Bearing 6002RS	520039

No	Description	Part No
17	Inner Gear Ring	210312
18	Gear Case	316812
19	Screw M5x8	504002
20	Motor Flange Plate	225323
21	Motor Gear	500027
22	Motor Assembly 24V	130016
23	Housing (LH)	306053
24	Forward/Reverse Bar	311579
25	Switch	163939
26	Field-Effect Tube	164001
27	Heat Sink	235500
28	x-head Screw M3x6	500800
29	Battery Pack	654808
30	Housing (RH)	306053
31	x-head Screw M3.9	500200
32	x-head Screw M3.9	500201



# DECLARATION OF CONFORMITY



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

Hemnal 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):

EN60745-1:2009, EN 60335-2-29:2004, EN60745-2-2:2003+ A11:2007+ A1:2009+ A12:2009,  
EN 60335-1:2002+ A1:2004+ A11:2004+ A12:2006+ A2:2006+ A13:2008, EN 62233:2008

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: 2010

Product Description: 24V Cordless Impact Wrench  
Model number(s): CIR220  
Serial / batch Number: N/A  
Date of Issue: 24/08/2012

Signed:



J.A. Clarke  
Director

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