



THORNE &
DERRICK
INTERNATIONAL

Thorne & Derrick
+44 (0) 191 410 4292
www.powerandcables.com



CEMBRE

PORTABLE BATTERY HYDRAULIC CUTTING UNITS
RADIO CONTROLLED



B68RC3-85
B68RC3-96
B68RC3-120

B68RC3-85E
B68RC3-96E
B68RC3-120E

CE

UK
CA



ENGLISH

OPERATION AND MAINTENANCE MANUAL

21M190E - 6261489

FIG. 1



FIG. 2



FIG. 3

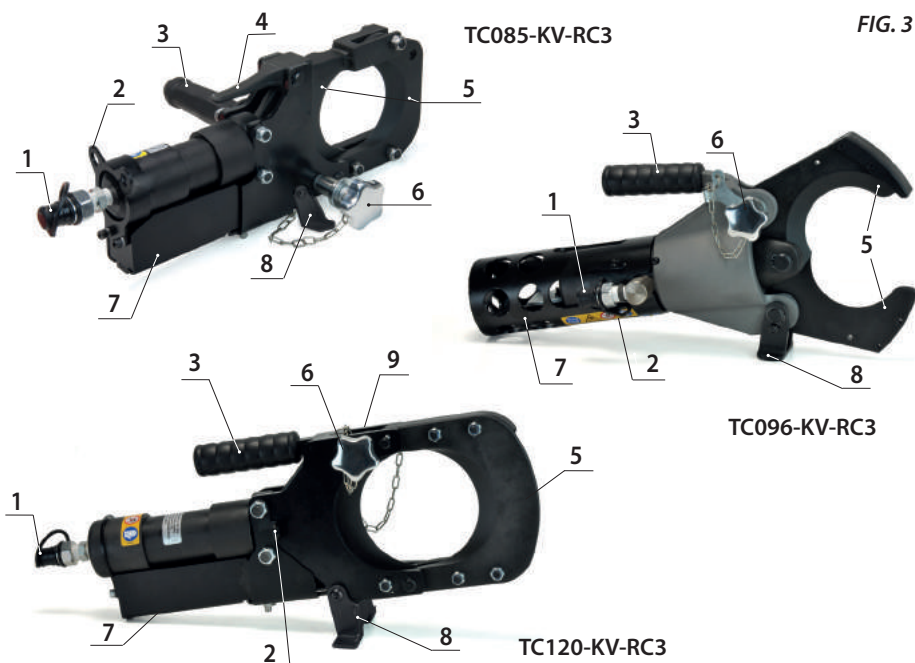


FIG. 4

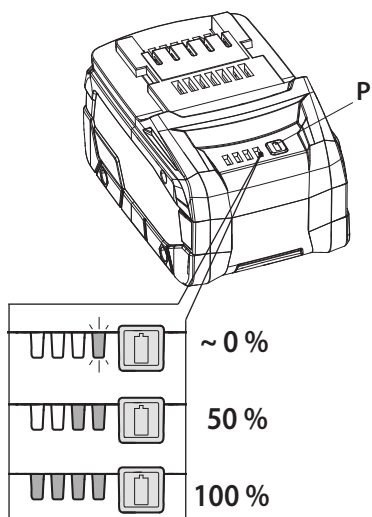


FIG. 5

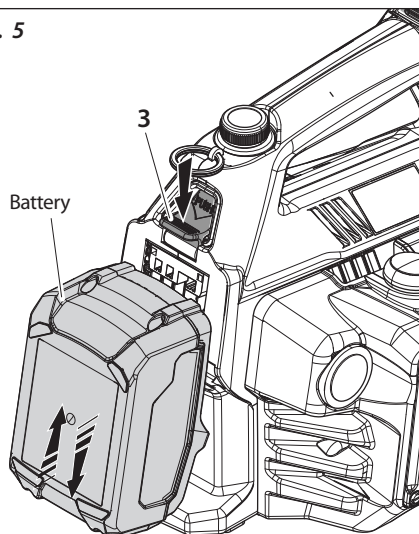


FIG. 6

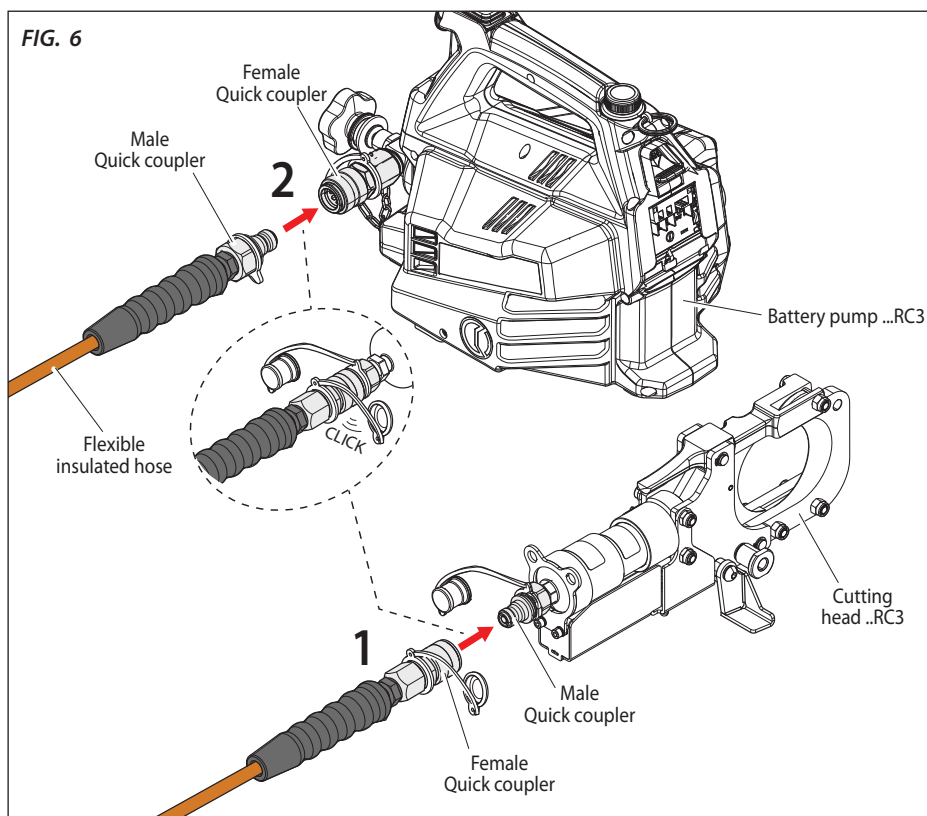
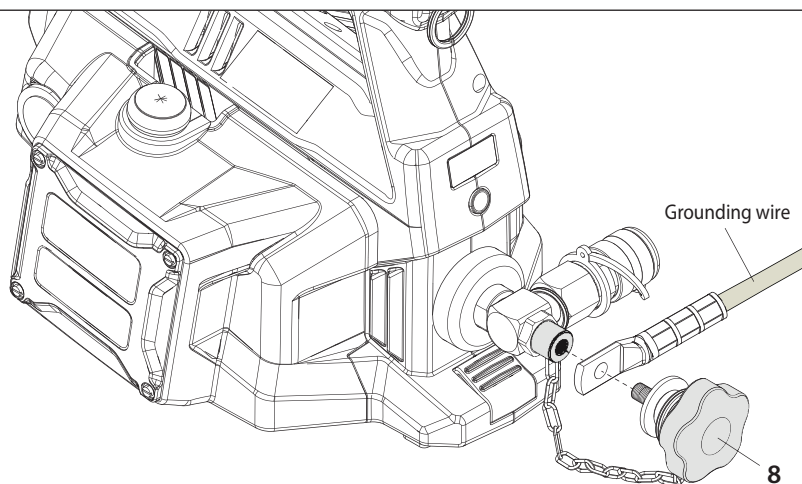


FIG. 7



TC085-KV-RC3

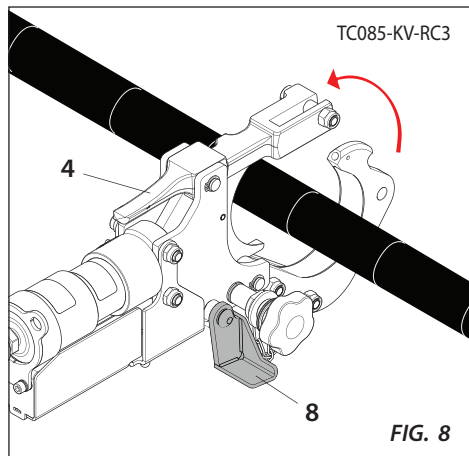


FIG. 8

TC120-KV-RC3

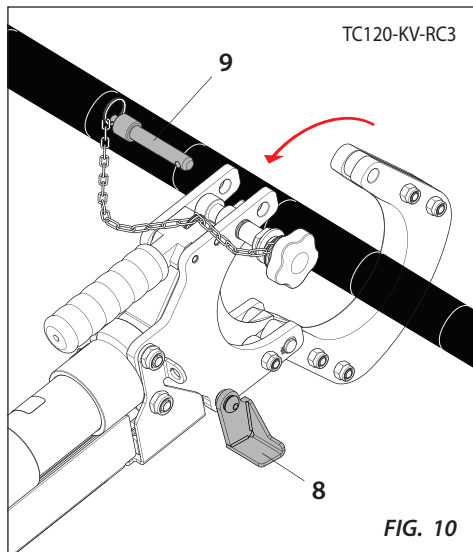


FIG. 10

TC096-KV-RC3

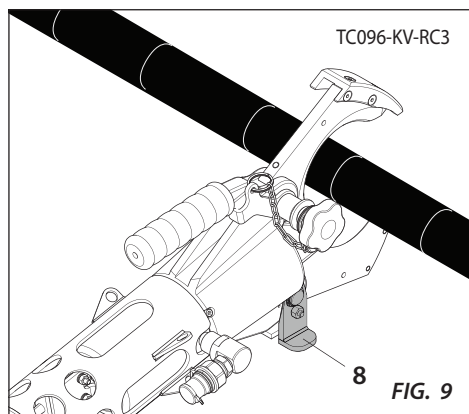
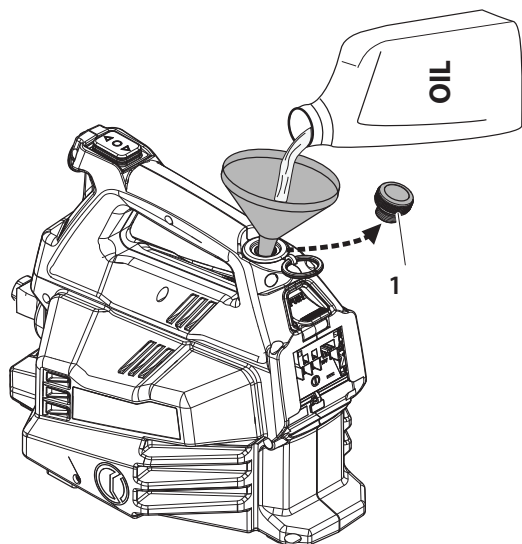


FIG. 9

FIG. 11



WARNING : use dielectric oil only.
For type and quantity refer to
section 1, page 9.

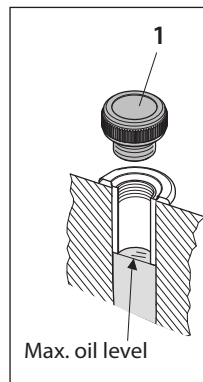
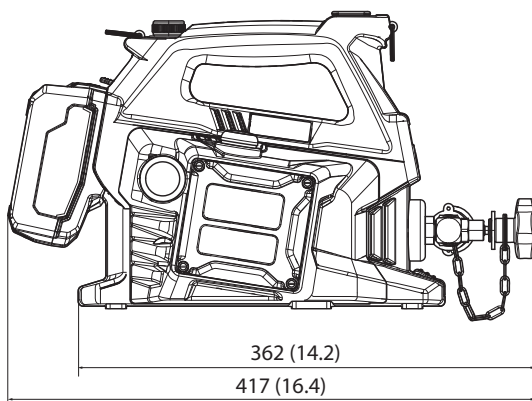
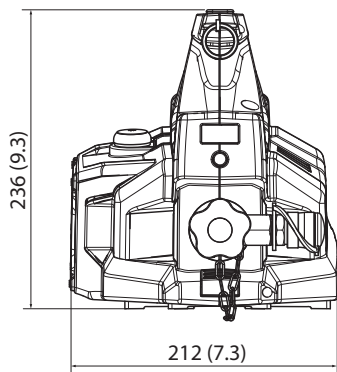


FIG. 12

mm (inch)





WARNINGS

Hydraulic pumps manufactured by CEMBRE S.p.A. are developed for use with hydraulic heads. According to this specific use, they do not need and are not equipped with an oil non-return safety system. For this reason, use in applications different from those intended (for example with hydraulic jacks, lifting systems or similar) can be dangerous for the operator.

CEMBRE S.p.A. does not accept any liability arising from the use of its hydraulics pumps for applications different from those listed in its catalogues or other documentation.

Do not use the pump for purposes other than those intended by CEMBRE S.p.A.

The operator should concentrate on the work being performed and be careful to maintain a balanced working position.

Avoid dirty surfaces: dust and sand are a danger to any Electro-hydraulic equipment.

Protect the pump and accessories from rain and moisture. Water will damage the pump and battery.

The flexible hydraulic hose supplied should always be used to connect the hydraulic head to the pump. The hydraulic head should never be directly connected to the pump.





The pump contains dielectric oil which must not be polluted with any other types of oil.

Never connect to the pump any hydraulic heads which still contains oil, this can occur if the ram on the hydraulic head has not been fully retracted; excess oil could cause the pump to malfunction.

Before disconnecting the flexible hose, check that the ram of the head is completely retracted, in order to ensure that a sufficient quantity of oil is available for subsequent operations.

The pump is unsuitable for continuous use and should be allowed to cool down following uninterrupted, successive crimping operations; for instance, having exhausted a fully charged battery in one session, delay battery replacement for a few minutes.

PUMP WARNING LABEL

 <p>IMPORTANT: Before using the equipment, carefully read all the warnings and instructions in this manual. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.</p>	 <p>When operating the pump, keep hands away from the danger zone.</p>	 <p>Always wear safety gloves when operating the equipment.</p>	 <p>User information (Directives 2011/65/UE and 2012/19/UE), see page 28.</p>
---	---	--	--

Safety instructions for battery:



- Protect battery from water and moisture!
- Do not expose battery to naked flame!

- Do not use faulty or deformed battery!
- Do not open battery!
- Do not touch or short circuit battery contacts!



- A slightly acidic, flammable fluid may leak from defective Li-ion battery!
- If battery fluid leaks out and comes into contact with your skin, rinse immediately with plenty of water. If battery fluid leaks out and comes into contact with your eyes, wash them with clean water and seek medical attention immediately!
- At the end of their life, always recycle batteries.
- Never discard batteries with domestic waste. They must be sent to appropriate collection centres for disposal.

- If the machine is defective, remove the battery from the machine.
- Remove the battery from the machine to transport the machine.

Transport of Li-ion battery packs:

The shipping of Li-ion battery pack is subject to laws related to the carriage of hazardous goods (UN 3480 and UN 3481).

Inform yourself of the currently valid specifications when shipping Li-ion battery packs. If necessary, consult your freight forwarder.

Only send the battery pack if the housing is intact and no fluid is leaking.

Remove the battery pack from the machine for sending.

Prevent the contacts from short-circuiting (e.g. by protecting them with adhesive tape).

1. ELECTRO-HYDRAULIC BATTERY PUMP B68M-P18-KV-RC3 (RADIO CONTROLLED)

Operating pressure	bar (psi)	729 (10,573)		
Oil supply				
high speed - low pressure	US gpm (l / min)	0.34 (1,28)		
low speed - high pressure	US gpm (l / min)	0.07 (0,25)		
Motor	V DC	18		
Radio receiver frequency	Mhz	2405–2480		
remote control	Mhz	868 (EUROPE)		
cutting head blade travel sensor				
Operating temperature	°C (°F)	-15 to +50 (+5 to +122)		
Oil reservoir capacity	cu. in. (cm ³)	58.6 (960)		
Recommended dielectric oil		TOTAL DIEKAN 1640		
Operating speed		Double speed action: operation and automatic switching from a rapid advancing speed to a slower, more powerful working speed		
Degree of protection		IP 20		
Dimensions		Ref. to Fig. 12 page 6		
Weight with battery	kg (lbs)	6,3 (13.8)		
Safety		double safety system, electronic & mechanical safety valve		
Acoustic noise ⁽¹⁾	dB	L _{pA} 66.8 (A)	L _{pCPeak} 88 (C)	L _{WA} 82.8 (A)
Vibrations ⁽²⁾	m/s ²	0.318		

Rechargeable battery	type	CB1880L Li-Ion
	V / Ah (Wh)	18 / 8.0 (144)
Weight	kg (lbs)	1 (2,2)

Battery charger	type	ASC55-EU with EU plug (supplied with B68RC3-...) ASC30-36-UK with UK plug (supplied with B68RC3-...E)
Input	V / Hz (W)	220 - 240 / 50 - 60 (85)

⁽¹⁾ Directive 2006/42/EC, annexe 1, point 1.7.4.2 letter u

L_{pA} = weighted continuous acoustic pressure level equivalent.

L_{pCPeak} = maximum value of the weighted acoustic displacement pressure at the work place.

L_{WA} = acoustic power level emitted by the machine.

⁽²⁾ Directive 2006/42/EC, annexe 1, point 2.2.1.1

Weighted root mean square in frequency of the acceleration the upper limbs are exposed to for each biodynamic reference axis. Tests carried out in compliance with the indications contained in EN ISO 5349-1/2 Standard, and under operating conditions much more severe than those normally found.

1.1) Compliance of use

- The complete unit (pump & cutting head) is specifically designed for the safe cutting of Copper and Aluminum cable where the absence of voltage cannot be guaranteed.
- The B68M-P18-KV-RC3 pump is designed to activate hydraulic heads for cutting conductor cables or for crimping electrical cable lugs.
- The dielectric oil used within the pump has special properties which insulate the pump from the cutting head in the event that a live cable is accidentally cut.
- The innovative radio remote control is specifically designed to allow the operator to control and operate the pump at a safe distance from the cutting operation.
- The complete unit (pump & cutting head) is fitted with a unique patented system which stops the pumps operation when a sensor on the cutting head signals that the cutting blades have fully travelled. At this point the LED indicator and buzzer on the pump notify the operator of the successful completion of the cutting operation. For this reason, each pump is paired to its specific cutting head only and it must be considered as a complete unit.



For the proper operation of all the safety features in the complete unit, each cutting head is paired to its associated pump. This procedure is completed by CEMBRE prior to delivery. Due to this, the use of non-paired pumps and cutting heads is not recommended and should be avoided. In order to trace all of the components of each complete unit, such as: pump, cutting heads, radio control, the user should check the same identification number reported on each item.

1.2) Description (Ref. to Fig. 1):

- (A) **Metal carrying case:** allows users to store the unit.
- (B) **Battery charger:** for recharging the batteries supplied; has "AIR COOLED" charging technology and a processor for managing charging cycles.
To use, carefully follow the instructions in the battery charger user manual.
- (C) **USB cable:** for transferring the data stored on the internal memory card to a PC.
- (D) **Flexible hose:** 10 m long high-pressure equipped with insulated high-dielectric oil and with quick-release couplings with automatic locking (Ref. to section 3).
- (E) **Rechargeable battery** (2 pcs): 18 V - 8.0 Ah high capacity Lithium Ion battery.
Provides 100% of its energy between -15 and +50 °C (+5 and +122 °F).
Electronic control of the individual cells to prevent over-charging and under-discharging.
Greater longevity and ventilated recharging in short times thanks to AIR COOLED technology.
Timed automatic power off to optimize energy consumption.
Equipped with LED indicators that indicate the remaining battery life at any time by pressing the button (P) (Ref. to Fig. 4):
4 LEDs illuminated: fully charged
2 LEDs illuminated: 50 % capacity
1 LED flashing: minimum charge, replace the battery.

With the battery inserted in the pump, the remaining battery life can also be checked on the display, via touch button selection (Ref. to **section 7**).



The display alongside indicates that the battery is low and the pump will not start (Ref. to **section 7.5**).



The approximate time to fully recharge a CB1880L battery is about 160 minutes.

- **(F) Shoulder Strap:** allows for easy transportation of the pump when connected to the rings (2) on the pump.
- **(G) Radio Remote Control RRC1:** allows users to control the pump from a safe distance. (Ref. to **section 2** for further details).
- **(H) Portable hydraulic high capacity pump:** driven by an 18V battery powered electric motor. An Electronic Pressure Sensor (EPS) ensures precision and repeatability of the work cycles and a maximum pressure valve to ensure maximum operator safety. The pump features a double safety control: hydraulic pressure and blade travel sensor signal. The memory card integrated into the pump allows the storage of the data relating to previous operating cycles.
The default settings of the pump are:
Operating mode: **CUTTING** (Ref. to **section 7.2** to choose CRIMPING operating mode).
Oil release mode: **SMART** (Ref. to **section 7.3** for further details).
Pump control mode: **RADIO ON**, enables the radio remote control (Ref. to **section 7.4** for further details).

Main components (Ref. to Fig. 2):

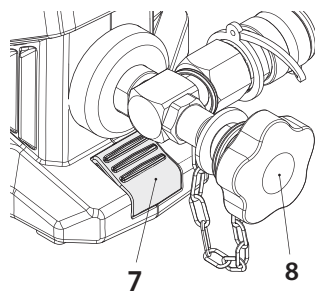
- 1 - OIL FILLER CAP: for accessing the pump's oil tank.
- 2 - STRAP FASTENING RING: to attach the shoulder strap and transport the pump.
It can be used to hang the radio control before the storage of the pump.
- 3 - BATTERY RELEASE DEVICE: to lock/unlock the battery, press the button (3) and push the battery downward to unlock it (Ref. to Fig. 5). Insert a battery from the bottom by sliding it into the side guides until it locks.
- 4 - LED INDICATOR: to visually indicate to the operator the progress and the conclusion of the cutting operation or to notify the operator of procedural or operational errors.
- 5 - BUZZER: synchronized with the LED indicator to indicate audibly the operation in progress or to notify the operator of procedural or operational errors.
- 6 - RADIO RECEIVER BOX: includes the radio receivers of the remote control and of the blade travel sensor.

7 - MECHANICAL PRESSURE RELEASE BUTTON: if required, by pressing hard on the mechanical pressure release button, the oil can be returned to the reservoir at any time, **regardless of the status of the battery.**

8 - GROUNDING SOCKET + KNOB: for connecting a CEMBRE grounding cable. Should there be the danger of voltage gradients between cutting head and pump, the pump can be connected to earth using the earth terminal and the specific cable so as to form an equipotential connection.

This grounding device is available as an optional accessory (Part. no EK 100).

One end of the ground cable must be connected to the earth terminal of the pump, the other end must be connected to a suitable item within the vicinity of the pump (e.g. grate, steel sheet, etc.).



9 - I38F AUTOMATIC QUICK COUPLER: enables connection of the insulated flexible hose.

The swivel attachment enables the rotation of the hose to the most convenient position for the operator.

In order to attach or disconnect the hose, pull the ring back.

The couplers cannot be disconnected if the system is under pressure.

The anti-dust protection cap must be used on both the hose and pump couplings to prevent ingress of dirt or contamination.

10 - CAPACITIVE TOUCH BUTTON: for menu selection allows selection of various screens only when the display is on (Ref. to **section 7**).



Do not apply pressure to or stab at the touch button, a light touch using a bare finger is sufficient. The command pulse is sent when the finger releases the button.

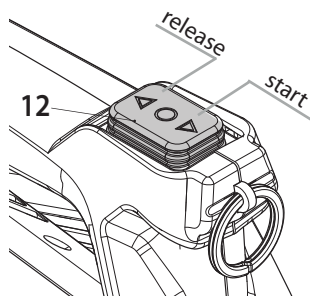
The capacitive touch button may not work if touched using objects or when wearing gloves, therefore always operate it using a bare finger.

11 - OLED DISPLAY: switches on when the control button (12) on the pump is pressed forward and off automatically after 1 hour of non-operation.

12 - CONTROL BUTTON: rockertype, push forward once to wake up the pump and turn on the display.

NOTE: if required the control button can be used to activate the pump motor or release the oil in manual mode instead of the RRC1 radio remote control.

By default setting this function is disabled, to enable refer to **section 7.4**.



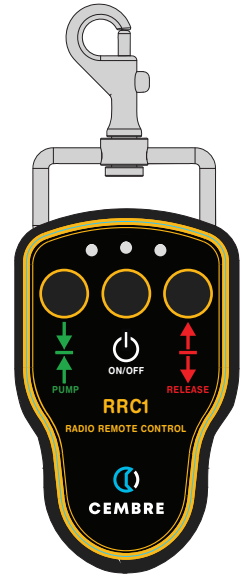
13 - HANDLE: for safe and balanced transportation of the pump.

2. RRC1 RADIO REMOTE CONTROL

FEATURES:

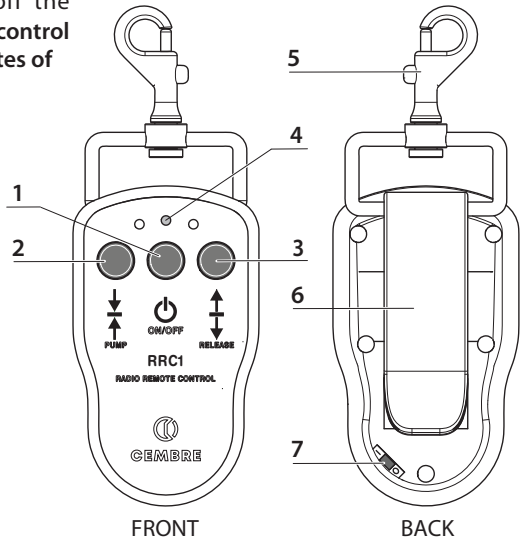
frequency band:	2405–2480 MHz
battery:	2 x 1.5V AAA / LR03 Alkaline
dimensions:	2.6 x 4.5 x 1.5 in (66 x 114 x 37.5 mm)
weight:	0.3 lbs (140 g)
IP code:	67
Operating temperature:	-4 to +130 °F (-20 to +55 °C)

The **RRC1** radio remote control allows users to control the pump. Each RRC1 radio remote control is only paired to and should only be used with the pump which it was supplied with. Ergonomically designed with a comfortable grip even while wearing work gloves. The functions listed below are operable via the RRC1:



• Function:

- 1 - ON/OFF BUTTON: to switch on or off the radio remote control. **The radio remote control automatically switches off after 3 minutes of inactivity.**
- 2 - PUMP BUTTON: to start the pump motor or to reset any alarms when pressed and held for 2 seconds.
- 3 - RELEASE BUTTON: can be operated at any time (other than if there is an error) to release the pressure allowing oil to be returned to the pump reservoir.
- 4 - INDICATOR LED: the center LED flashes when the radio control is ON (green when the remote control battery is good, red when the remote control battery is low).
- 5 - HOOK: to hang the radio control to the rings (2) of the pump or to the operator's belt during transportation or storage.
- 6 - CLIP: to hang the radio control to the operator's belt.
- 7 - POWER SWITCH: located on the back of the radio control, this switch stops the power supply from the batteries. When in the off position (O), the radio control cannot be started. When the radio remote control is transported by airplane, the on/off switch must be in the off position. The switch should not be used as an on/off button for the radio control.



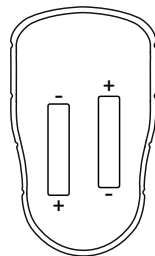
- **Changing RRC1 batteries:**

When approximately 10% of battery capacity remains, the top LED lights red.

- Remove the back of the radio control by unscrewing the 5 screws.
- Replace the 2 x 1.5V AAA batteries with the correct polarity.

Use alkaline batteries for optimal performance.

- Screw the back of the radio control into place.



BATTERY PRECAUTIONS

As batteries contain flammable substances such as lithium or other organic solvents, they may cause heating, rupture or ignition.

WARNING! Do not recharge the batteries. Attempts to recharge may cause rupture or hazardous liquids to leak, which will corrode the equipment.

NOTE: Electronics and batteries must be physically separated before disposal.

Make sure that electronics or batteries are not disposed of in household waste.

- There is a risk of explosion if a battery is replaced with the incorrect type of battery.
- Do not short circuit, disassemble, deform or heat batteries.
- Keep batteries out of reach of children. If a child swallows a battery, seek immediate medical attention.
- When discarding batteries, insulate the + and - terminals of batteries with insulating/masking tape. Do not put multiple batteries into the same plastic bag.
- When improperly disposed, batteries may short circuit, causing them to become hot, burst or ignite.
- Store in a cool place. Keep batteries away from direct sunlight, high temperatures, and high humidity. Do not throw batteries onto fire.

3. FLEXIBLE HOSE



High pressure flexible hoses are subject to a natural ageing process which can result in a reduction in performance potentially affecting safety of the operator. As a result their life span is limited. In order to ensure safe use, CEMBRE recommends replacing the hose within 10 years from the date printed on the fittings.

- Before using the pump always check the integrity of the flexible hose and the quick couplers making sure there are no abrasions, cuts, deformations or swellings.
- Keep the flexible hose away from naked flames and sources of heat above 70°C (158°F).
- The factory fitted guards must be in place at each end of the flexible hose.
- Do not touch the flexible hose when under pressure.
- When using the pump, the flexible hose must be uncoiled and laid out straight.

The standard flexible hose is 10 m (33 ft) long. It is used to deliver oil under pressure, generated by the pump, to the cutting head and as an insulating element between the head and the pump. The insulated flexible hose is completely filled with an insulating oil with dielectric properties which insulate the pump from the cutting head.







The working range of the cutting head is 10 m from the pump; this distance allows the proper communication between the head and the pump.

In case longer flexible hoses are used, it is possible that the wireless blade travel sensor signal will not reach the pump.

4. HYDRAULIC SAFETY CUTTING HEADS WITH BLADE TRAVEL SENSOR

WARNING LABELS

 <p>IMPORTANT Before using the equipment, carefully read all the warnings and instructions in this manual. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.</p>	 <p>Keep hands clear of cutting blades.</p>	 <p>Do not cut Steel. Do not attempt to cut Steel ropes or Steel reinforced cables (ACSR), the heads are designed for cutting Copper or Aluminum cable.</p>	 <p>Always wear safety gloves when operating these safety cutting heads.</p>
--	--	--	---

		TC085-KV-RC3	TC096-KV-RC3	TC120-KV-RC3
Max. cutting cable diameter	mm (inch)	85 (3-3/8")	95 (3-3/4")	120 (4-3/4")
Max. operating pressure	bar (psi)	10,000 (700)		
Oil necessary (displacement)	cm ³ (cu. in.)	90 (5.5)	124 (7.6)	182 (11.1)
Wireless sensor frequency	Mhz	868		
Weight	kg (lbs)	6,1 (13.4)	9,6 (21)	10,8 (23.7)
Dimensions	mm (inch)	410 x 152 x 233 (16.1 x 5.9 x 9.2)	500 x 242 x 145 (19.7 x 9.5 x 5.7)	536 x 184 x 139 (21.1 x 7.2 x 5.5)

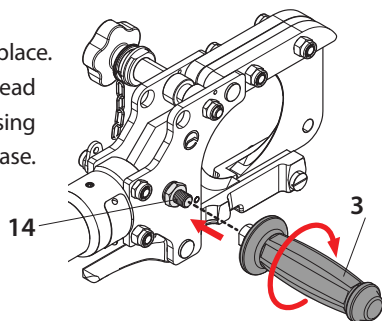
- Hydraulic cutting heads type **-RC3** are fitted with a unique wireless blade travel sensor paired to the receiver integrated in the pump.
- Each cutting head is uniquely paired to its specific pump using EU frequencies (868 MHz).
- The wireless sensor mounted on the head is maintenance-free as it is fully protected and has battery-free technology.
- Select the appropriate cutting head for the diameter of the cable to be cut and use only with the associated paired pump.
- The cutting heads must be positioned manually around the cable to be cut.
- A grounding point is provided to facilitate grounding of the cutting head when required.

Cutting head description (Ref. to Fig. 3):

- | | |
|---|------------------------------------|
| 1 - MALE INSULATED QUICK COUPLER | 5 - BLADE |
| 2 - EYELETS FOR HANGING THE SUPPORT STRAP | 6 - GROUNDING SOCKET + KNOB |
| 3 - HANDLE (TC085..to be attached) | 7 - CASE FOR WIRELESS BLADE SENSOR |
| 4 - HEAD LATCH | 8 - HEAD POSITIONING SUPPORT |
| | 9 - HEAD FIXING PIN |

4.1) Preparation

- Only remove the cutting head from its case at the work place.
- *TC085-KV-RC3*: mount the support handle (3) on the head by screwing it onto the threaded pin (14); when finished using the unit, remove the handle before storing the head in its case.



4.2) Grounding the cutting head

In **Germany** (see BGI 845) no earth conductor must be connected to the cutting head. In some European countries, the earth connection is used to favour the intervention of single phase short circuit protective devices.

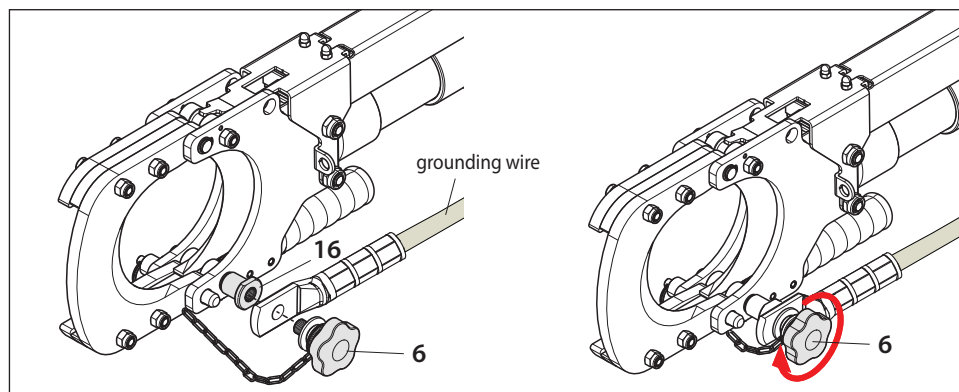
For countries other than **Germany** contact the electricity supply utility.

Should it be needed, the earthing device, comprising a 5m long cable and an earth rod, may be ordered from CEMBRE (Part. no **EK 500P**).

Whatever the case, the earthing device must be approved by CEMBRE.

To ground the cutting head, proceed as follows:

- Unscrew knob (6) from the grounding socket (16) of the head.
- Connect the terminal of the grounding wire to the socket using the knob (6), **fasten the knob tightly**.
- Fully unwind the grounding wire and connect the other end to the grounding system using the clamp.



5. INSTRUCTIONS FOR USE (Cutting operation)



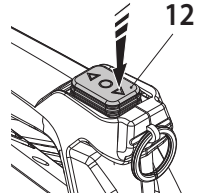
Cutting operations must be strictly in accordance with the safety and working procedures established by the responsible power utility.

STEP 1- Checking and testing the unit prior to cutting operations

Check all components (cutting head, flexible hose, couplings and pump) before use to verify there is no damage or leakage.

Proceed as follow:

- ▶ Check the battery charge and recharge it if necessary following the instructions in the battery charger user manual. **When a cutting operation begins, a check is made from the electronic card to determine whether the battery charge is sufficient to complete the cutting operation. If this is not the case the pump does not start. The LED (4) light will FLASH intermittently and the buzzer (5) will emit an audible signal coordinated with the LED light.**
- ▶ Remove the battery from the pump (Ref. to Fig. 5).
- ▶ Connect the flexible hose first to the cutting head and then to the pump (Ref. to Fig. 6).
- ▶ Insert the battery into the pump.
- ▶ Activate the pump by pressing forward the control button (12) on the pump, the display lights up and the pump setting is displayed.
- ▶ Turn on the radio control by pressing the ON/OFF button (1), the LED will flash green, after 3 minutes the radio control automatically switches off.
- ▶ Press the pump button (2) on the radio control to perform a test cutting operation. **During the operation the pump's LED light will FLASH intermittently and the buzzer will emit an audible signal coordinated with the LED light.**
- ▶ At the end of the operation the pump will stop, the LED will remain a **STEADY LIGHT** (2 minutes) and the speaker will emit a **COUNTINUOUS BUZZER** sound (30 seconds). This confirms the pump received a signal from the cutting head acknowledging that the blades are completely closed; the display will show the following flashing screen (Ref. to **section 7.5** for further details).
- ▶ Release the finger from the pump button (2) to initiate the SMART RELEASE function of the pump; the operator should then check to ensure the blades are fully retracted to the start position.
- ▶ Remove the battery from the pump.
- ▶ Disconnect the flexible hose from the pump and cutting head.





At the end of the operation, in the event of a flashing LED light (2 minutes) and an intermittent buzzer (30 seconds), this is to inform the operator that the wireless signal to indicate the blades have fully traveled has not been received.

The display will show the following flashing screen (Ref. to section 7.6 for further details).



STEP 2 – Position the unit

- ▶ Position the blades of the cutting head perpendicularly around the cable that has been identified for the cut. The cutting head must then be manually positioned around the cable.
- ▶ *TC085-KV-RC3*: release latch (4) to open the blades.
insert the cable, close the head and fully secure the latch (4) (Ref. to Fig. 8).
Ensure that the head is fully secured: partial closure may damage the head.
- ▶ *TC096-KV-RC3*: insert the cable between the blades (Ref. to Fig. 9).
- ▶ *TC120-KV-RC3*: extract the locking pin (9) to open the blades.
Insert the cable, close the head and fully secure the locking pin (9) (Ref. to Fig. 10).
Ensure that the head is fully secured: partial closure may damage the head.



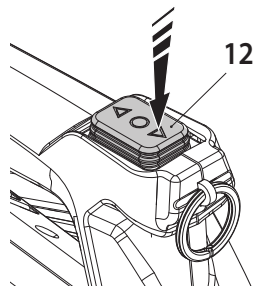
Make sure the blades are positioned exactly on the desired cutting point.

- ▶ Once the blades of the cutting head are around the cable to be cut, stabilise the head by its support (8) to prevent any movement during the cutting operation;
- ▶ If required connect one end of the grounding cable to the cutting head and the other end to the relevant grounding attachment (Ref. to **section 4.2**).
- ▶ Connect the flexible hose to the cutting head (Ref. to Fig. 6),
- ▶ Fully unwind the flexible hose.
- ▶ Position the pump as far as possible from the cutting point and connect it to the flexible insulated hose.



Do not place the pump on dirty surfaces or in the presence of water.

- ▶ Place the pump such that the flexible hose can be laid “zigzag” on the ground.
This precaution is to compensate for shortening of the hose while the pump is operating.
- ▶ If for any reason the minimum 10m radius no entry zone cannot be established, other precautionary measures must be taken (e.g. embankments or protection walls) to protect the operator from a possible disturbance arc due to a short circuit.
- ▶ Insert the battery.
- ▶ Wake up the pump by pressing forward the control button (12) (display ON).



The operator should now move away from the pump.

STEP 3 – Cutting operation



A protected zone must be established around the work place where entry is forbidden.

- ▶ Switch on the radio control by pressing the start ON/OFF button (1), the LED will flash green.
 - ▶ At a safe distance, push the pump button (2) on the radio control to start the cutting operation.
- The maximum distance between radio control and pump is 20 m (66 ft) if within line of sight.



During the cutting operation the pump's LED light will flash intermittently and the buzzer emits an audible signal coordinated with the LED light.

In the event that the buzzer is not heard, hold the pump button (2) for 1 minute, after 1 minute the pump button can be released to start the automatic release of the cutting blades.

STEP 4 – Checking the unit after the cutting operation

- ▶ Look at the pump and assess which of the following two situations has occurred:

1) THE CABLE HAS BEEN FULLY CUT

The STEADY LED LIGHT and the CONTINUOUS BUZZER confirm that the blades have completed their full travel. The display will show the screen alongside.



- ▶ Access the area and remove the cutting head.



In case the blades are jammed after the cut, you can activate the FORCED RELEASE MODE by pressing the release button 3 times within 2 seconds; refer to section 7.3.1 for further details.

2) THERE IS NO CERTAINTY THAT THE CABLE HAS BEEN FULLY CUT

A FLASHING LED LIGHT (2 MIN) and the INTERMITTENT BUZZER (30 seconds) informs the operator that the blade travel sensor signal has not been received, the display will show the following flashing screen.



In order to reset the alarm, hold the pump button for 2 seconds then repeat the cutting cycle.



Before approaching the cutting area to check the problem, strictly follow the safety and working procedures established by the responsible power utility.



WARNING: In case of accidentally cutting live cable, strictly follow the working procedures established by the responsible power utility.

6. INSTRUCTIONS FOR USE (Crimping operation)

The pump is suitable for use with CEMBRE KV type protected crimping heads.

The default settings of the pump are:

- Operating mode: CUTTING (Ref. to **section 7.2** to choose CRIMPING operating mode).
- Oil release mode: SMART (Ref. to **section 7.3** for further details).
- Pump control mode: RADIO ON, operated by radio remote control only (Ref. to **section 7.4** for further details).



For a crimping operation select the crimping mode via the display, before starting any crimping operations.

When the crimping mode is active, the LED light (4) and the buzzer (5) are deactivated.



When the battery is removed from the pump or after 1 hour of inactivity (display OFF), once you wake the pump up, it will always start with the default setting:

CUTTING MODE, SMART RELEASE and RADIO ON.

- Connect the flexible hose, first to the head and then to the pump.
- Press the control button (12) on the pump once to activate the pump, display ON.
- Switch on the radio control by pressing the ON/OFF button (1).

- Press the pump button (2), this activates the motor of the pump that feeds the hydraulic head connected to it, pressurising the oil.



Once the set pressure (P_n) is reached the pump will be switched off automatically, the display will briefly show the maximum pressure reached (P_p) followed by "OK" to confirm the correct operation.

Releasing the pump button before the automatic stopping of the motor will cause the pump to stop, keeping the oil pressure stable (P_p) at its current pressure level. To complete the operation press the pump button once more until the motor stops automatically.

- At the end of the cycle, releasing the pump button will start the automatic release of the ram and will allow return of the oil to the oil reservoir in the pump (Ref. to **section 7.3** for further details).

$P_n = 729 \text{ bar}$
 $P = 0 \text{ bar}$

$P_n = 729 \text{ bar}$
 $P_p = 731 \text{ bar}$

$P_n = 729 \text{ bar}$
OK  



The display "ERROR" combined with 3 beeps and the LED flashing, indicates an incorrect crimping procedure; the oil return phase occurred too early without waiting for the motor to be automatically switched

off and therefore the minimum set pressure was not reached.

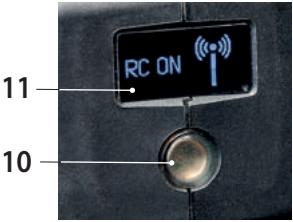
Repeat the crimping cycle by holding down the start button until the motor is automatically switched off.

When a crimping head is used, always press and hold the pump button until the motor stops automatically.

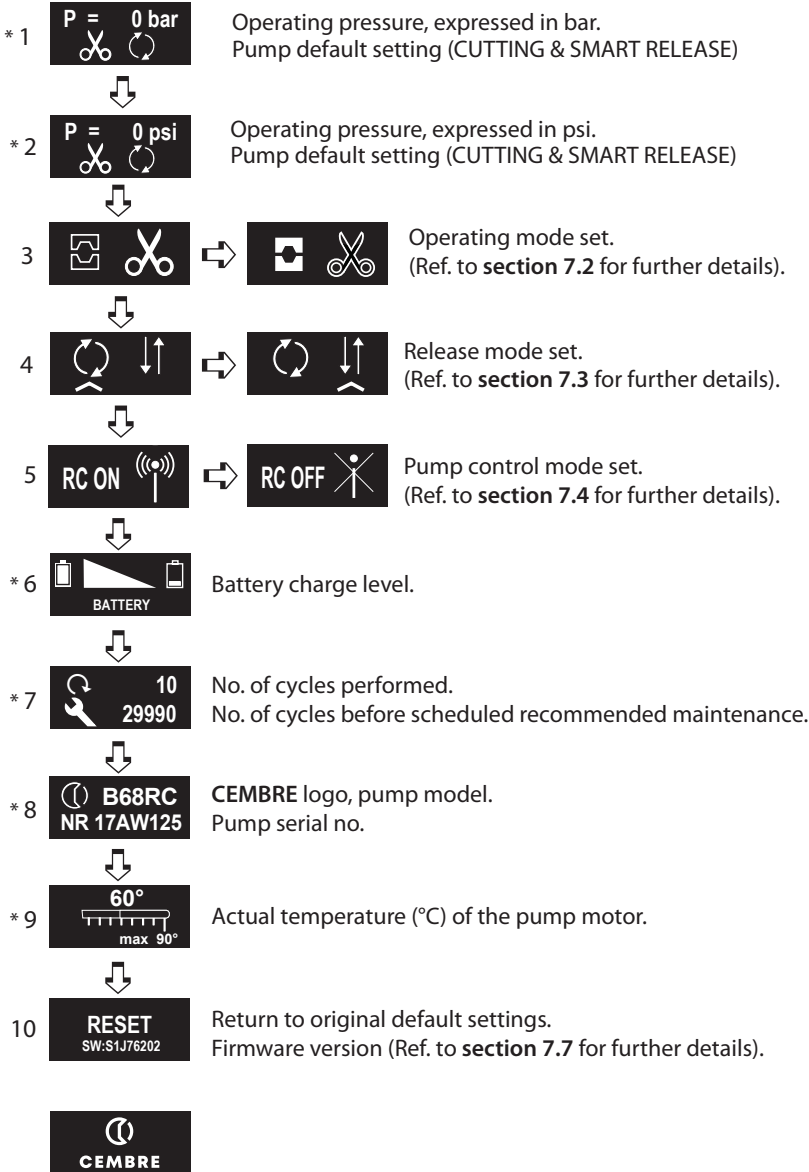
ERROR

7. NAVIGATION MENU / DISPLAY

The OLED display (11) is activated with a push of the control button (12) on the pump. To navigate through the various screens in the main menu, touch the capacitive button (10) repeatedly.



7.1) Structure of the "main menu"



(*) Screens 1-2-6-7-8-9 can be set as the “main screen” which is shown on the display every time the pump is operated; to do this, when the pre-selected screen is displayed, hold the finger on the touch button (10) until a confirmation “beep” is heard.

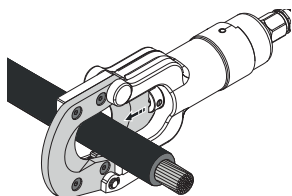


7.2) Choosing the "operating mode"

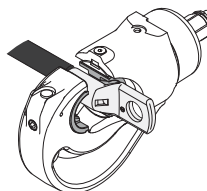
The “operating mode” allows the user to define the pump function depending on the type of hydraulic head connected. This enables the optimization of the job cycle and discharging of the battery. It is possible to choose between two different operating modes:





CUTTING (default setting)



CRIMPING



Operating mode	Associated pictogram	Function
CUTTING default setting		Specifically for using the pump with CEMBRE hydraulic heads with blade travel sensor for cutting electrical conductors where the absence of voltage cannot be guaranteed.
CRIMPING		Specifically for using the pump with CEMBRE hydraulic heads for crimping of electrical connectors. NOTE: When the crimping mode is active, the LED light and the buzzer are deactivated.

To change the desired “operating mode”, proceed as follows:



- Select screen 3 from the “main menu” (Ref. to **section 7.1**), hold the finger on the touch button (10) until a confirmation “beep” is heard, the selected operation mode is shown by filling the related pictogram.



When the battery is removed from the pump or after 1 hour of inactivity (display OFF), once you wake the pump up, it will always start with the default setting, CUTTING MODE.


7.3) Change the "release mode"

The method of discharging the oil into the pump's tank can be carried out in two different ways, depending on the mode set in the menu:

Release mode	Associated pictogram	Function
SMART default setting		By releasing the pump button the oil is returned in full to the pump reservoir only following automatic shut-off of the motor. During the return phase, pressing the buttons allows the head ram retraction to be interrupted at any point.
MANUAL		To return the oil to the pump reservoir it is necessary to press and hold the release button. During the return phase, by releasing the button it is possible for head ram retraction to be interrupted at any point.

To change the "release mode", proceed as follows:

- Select screen 4 from the "main menu" (Ref. to **section 7.1**), hold the finger on the touch button(9) until a confirmation "beep" is heard, the choice made is show by the related pictogram.

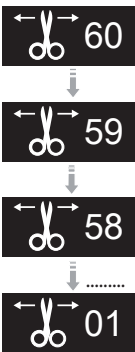
 **When the battery is removed from the pump or after 1 hour of inactivity (display OFF), once you wake the pump up, it will always start with the default setting, SMART MODE.**

7.3.1) Extended release phase

If necessary, the phase of discharging the oil into the pump's tank can be extended, leaving the release valve open for 60 seconds.



This function is useful in the event that the blades are jammed after the cutting operation. It allows the operator to work on the cutting head using both hands in case of a blade jamming.

To activate "extended release" proceed as follows:



- Press quickly (3 times within 2 seconds) the release button on the radio control RRC1 or the button (12) backward on the pump if RC mode is disabled. The operation is then reported on the display by a counter associated with an intermittent buzzer.
- In order to stop the countdown before reaching zero, press the pump button on the radio control once for 2 seconds.

7.4) Change the "pump control mode"

Control mode	Associated pictogram	Function
RADIO ON default setting		Control of the pump by means of radio control RRC1 only. The control button (12) of the pump is disabled, except for waking up the pump.
RADIO OFF		Control of the pump by means of the control button (12) of the pump only. The radio control receiver and the radio control RRC1 are disabled.

To change the "pump control mode", proceed as follows:




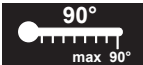


- Select screen 5 from the "main menu" (Ref. to **section 7.1**), hold the finger on the touch button (9) until a confirmation "beep" is heard, the choice made is shown by the related pictogram.



When the battery is removed from the pump or after 1 hour of inactivity (display OFF), once you wake the pump up, it will always start with the default setting, RADIO ON.









7.5) Alarms / Warning / Notification

These appear on the display during operation or at the end of the cycle, informing the operator on the state of the pump. It can be combined with beeps.

Message	Meaning	Description
	CUT SUCCESSFULLY COMPLETED	The cutting operation completed successfully , the confirmation of a successful cutting operation is dependent on two control mechanisms: 1) the pressure reached is >100 bar. 2) the correct signal from the blade travel sensor is received Upon completion of a successful cutting operation, the display will show the amount of energy saved during the cutting cycle due to the pump not having to develop maximum pressure before both of the above control mechanisms were met (Ref. to section 7.8).
	BATTERY LOW	Replace or recharge the battery. NOTE: when the battery voltage falls below a minimum safety threshold, the pump will not start , although it is still possible to end a work cycle in progress. Pump's LED light flashes quickly (0.1 s ON 0.1 s OFF) and the buzzer emits a coordinated audible signal.
	BATTERY TEMPERATURE HIGH	Remove the battery and wait until it cools down. In order to cool it faster, it is possible to insert it into the battery charger supplied, thus making use of the specific "AIR COOLED" function.
	MOTOR-PUMP TEMPERATURE HIGH	The maximum permitted operating temperature of 90 °C (194 °F) has been reached. The pump stops ; in this instance wait for it to cool down. Only when the permitted working temperature is reached will it be possible to re-use the pump.
	INSUFFICIENT OIL	This appears when the pressure of the hydraulic circuit doesn't increase but remains near to zero for a duration of 60 consecutive seconds. Check the oil level and if necessary refill (Ref. to section 8.4).
	REQUEST MAINTENANCE	Number of cycle to recommended maintenance interval reached; the pump continues to work, however, it is recommended that it is sent to CEMBRE for a complete overhaul (Ref. to section 9).

7.6) Errors/Malfunctions

These appear on the display during operation, combined with a beep to notify the operator of procedural or operational errors.

Message	Error description	Solution
	<p>In CUTTING mode: The cutting phase has been intentionally interrupted by the operator. The pump has not developed the pressure needed to cut the cable and the signal from the blade travel sensor is missing.</p> <p>In CRIMPING mode: Oil discharge is activated before waiting for the motor to be automatically switched off.</p>	<p>In order to reset the alarm, press the pump button on the radio control once for 2 seconds. Repeat the cycle by holding the pump button until the signal from the blade travel sensor is received (steady buzzer and steady LED light).</p> <p>Repeat the crimping cycle, keeping the pump button pressed down until the motor switches off automatically.</p>
	<p>The pump reached the maximum pressure but the signal from the blade travel sensor is missing. This error happens when:</p> <ul style="list-style-type: none"> - the cutting head is out of range. - the cutting head used is not paired to the pump. - the head has not been able to cut the cable. 	<p>In order to reset the alarm, press the pump button once for 2 seconds, repeat the cut.</p> <p>Before approaching the cutting area to check the problem, strictly follow the safety and working procedures established by the responsible power utility.</p> <ul style="list-style-type: none"> - position the head next to the pump making sure that obstacles are not in between pump and head. - check the identification number of the head and of the pump reported on the tag. - check again the cable to be cut. - repeat the cycle and if the problem persists contact CEMBRE.
	The pump has been started without the flexible hose connected or the hose is not correctly connected.	In order to reset the alarm press the release button, connect the flexible hose or check the correct connection to the pump.
	Interruption of the signal from the NTC temperature probe of the battery.	Replace the battery. If the problem persists, please contact CEMBRE.
	Abnormal power consumption of the motor. The pump stops.	Remove and re-insert the battery, then re-start the pump. If the error occurs frequently, contact CEMBRE.
	Output voltage of the pressure transmitter is out of the pre-set range. The pump stops and doesn't re-start.	Remove and re-insert the battery, if the error occurs, contact CEMBRE.
	Failure to reach the set pressure within 120 seconds of continuous operation of the pump.	Repeat the work cycle; if the error occurs frequently, contact CEMBRE.
	Overcharging of the battery with protection tripping. The pump stops.	Remove and re-insert the battery, then re-start the pump. If the error occurs frequently, contact CEMBRE.


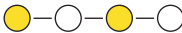














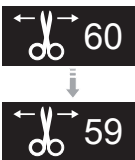
7.7) Return to original default settings / firmware version

Select screen 10 from the “main menu” (Ref. to **section 7.1**), to return the pump to its default setting hold the finger on the button (10) until a confirmation “beep” is heard.

RESET
SW:S1J76202

The RESET screen also shows the firmware version of the control board.

7.8) Acoustic and optical signalling chart (LED light and buzzer)

LED light	Buzzer	Display	Meaning
 <p>flashing</p>  <p>0.4 s ON 0.4s OFF</p>	 <p>intermittent</p>  <p>0.4 s ON 0.4 s OFF</p>	 <p>P = ... bar</p> 	Cutting operation in execution, the pressure on the display gradually increases.
<p>steady fixed</p> 	<p>continuous</p> 	 <p>OK SAVE 60%</p>	Cutting operation concluded successfully (Ref. to section 7.5).
<p>flashing</p>  <p>0.1 s ON 0.1 s OFF</p>	<p>intermittent</p>  <p>0.1 s ON 0.1 s OFF</p>	<p>BATTERY</p>   <p>ERROR</p> 	<p>The battery is low and the pump will not start (Ref. to section 7.5).</p> <p>Cutting operation not executed correctly (Ref. to section 7.6).</p> <p>Cutting operation intentionally interrupted by the operator (Ref. to section 7.6).</p>
<p>off</p> 	<p>intermittent</p>  <p>0.1 s ON 0.9 s OFF</p>	 <p>60</p> <p>59</p>	Forced release activated (blade disengagement) release valve open for 60 seconds (Ref. to 7.3.1).

8. MAINTENANCE

Battery Pump

The pump is robust, completely sealed, and requires very little daily maintenance. Compliance with the following points, should help to maintain its optimum performance:

8.1) Thorough cleaning of battery pump

Dust, sand and dirt are a danger for any hydraulic device.

Every day, after use, the pump and accessoires must be wiped with a clean cloth taking care to remove any residue. Do not use Hydrocarbons to clean the rubber parts.



After use, protect the couplers of the pump, hose and hydraulic head with their protective caps to prevent contamination.

8.2) Topping off the oil (Ref. to Fig. 11)

Periodically check, at least every 6 months, the oil level in the pump and top off if necessary:

- ▶ Position the pump without battery on its base on a flat surface.
- ▶ Completely discharge the oil pressure by pushing the pressure release button (7).
- ▶ Unscrew the filler cap (1).
- ▶ By using a funnel, **top off very slowly** to completely fill the oil reservoir to the maximum level.
- ▶ When the operation is finished replace the cap (1).

Always use clean recommended insulated oil, see section 1.



Do not use old or recycled oil. Do not use hydraulic brake fluid.

Ensure that used oil is disposed of in accordance with local regulations.

Cable cutting heads

The CEMBRE cable cutting heads are designed for on site use thanks to their robust construction characteristics.

8.3) Thorough cleaning of cutting head

To guarantee the reliability of the CEMBRE cutting head it is recommended to:

- ▶ After every use, remove dirt from the cutting head, cylinder, blades and seals using a brush dipped in a liquid detergent. Dry the area carefully.
- ▶ Carefully clean the quick couplers and their protective caps each time the unit is used.
- ▶ Periodically, lubricate blade pivots with some drops of oil.

8.4) Metal carrying case

To protect the unit from accidental damage and dust, it should be stored with its accessories in the special metal case provided.

Metal case: VAL B68M-RC3, size 665x422x260 mm (22.2x16.1x5.2 in.), weight 17,4 kg (38.3 lbs).



8.5) Storage

Once the job has been completed **always completely release the pressure** of the oil by holding down the release button; ensure that the ram of the connected hydraulic head is completely retracted before disconnecting the head.

- ▶ Remove the battery from the pump.
- ▶ Turn off the remote controller.
- ▶ Disconnect the flexible hose; avoid folding it with tight bends or knots that may compromise its integrity.
- ▶ Store the pump, head, insulated flexible hose and accessories in the metal case in a dry place.

9. RETURN TO CEMBRE FOR OVERHAUL

In the case of a breakdown contact our Area Agent who will advise you on the problem and give you the necessary instructions on how to dispatch the tool to our nearest service center; if possible, attach a copy of the Test Certificate supplied by **CEMBRE** together with the tool or fill in and attach the form available in the “ASSISTANCE” section of the **CEMBRE** website.

Following information applies in member states of the European Union:

USER INFORMATION in accordance with “Directives 2011/65/EU and 2012/19/EU.

The ‘Not in the bin’ symbol above when shown on equipment or packaging means that the equipment must, at the end of its life, be disposed of separately from other waste.

The separate waste collection of such equipment is organised and managed by the manufacturer. Users wishing to dispose of such equipment must contact the manufacturer and follow the prescribed guidelines for its separate collection. Appropriate waste separation, collection, environmentally compatible treatment and disposal is intended to reduce harmful environmental effects and promote the reuse and recycling of materials contained in the equipment. Unlawful disposal of such equipment will be subject to the application of administrative sanctions provided by current legislation.



Radio Remote Control

The pump introduces radio control to utility cable cutting operations in limited access locations, eg. in man-holes, to enable working from a safe distance.



Electronic Cut Sensor

The ECS guarantees the precision of the cutting operation, checking the actual value of pressure and informing the operator about possible errors.

The operator is in full control of the pump at all times as the pump communicates the progress of the cutting operation by audible and visual indicators. All at a safe distance.



Safe Cut Technology

Fitted with LED indicators and a buzzer to communicate during progress and at the completion of the cutting operation.



Smart Release Technology

Selecting the SMART RELEASE mode on the OLED display allows the operating pressure to be maintained until the operating button is released, thus allowing blades to open automatically at the end of the cutting cycle.



SMARTOOL Technology

Enables the user to transfer data from the integrated memory card of the pump to a computer, via USB cable.

WARNING.....	7
PUMP WARNING LABEL.....	8
Safety instructions for battery	8
1. ELECTRO-HYDRAULIC BATTERY PUMP (RADIO CONTROLLED).....	9
1.1) Compliance of use	10
1.2) Description.....	10
2. RRC1 RADIO REMOTE CONTROL.....	13
3. INSULATED FLEXIBLE HOSE.....	14
4. HYDRAULIC SAFETY CUTTING HEADS WITH BLADE TRAVEL SENSOR	15
4.1) Preparation	16
4.2) Grounding the cutting head.....	16
5. INSTRUCTIONS FOR USE (Cutting operation).....	17
STEP 1 – Checking and testing pump end cutting head	17
STEP 2 – Position the cutting head.....	18
STEP 3 – Cutting operation.....	19
STEP 4 – Checking the unit after the cutting operation.....	19
6. INSTRUCTIONS FOR USE (Crimping operation)	20
7. NAVIGATION MENU / DISPLAY.....	21
7.1) Structure of the "main menu"	21
7.2) Choosing the "operating mode"	22
7.3) Change the "release mode".....	23
7.3.1) Extended release phase	23
7.4) Change the "pump control mode"	24
7.5) Alarms/Warning.....	24
7.6) Errors/Malfunctions.....	25
7.7) Return to original default settings / firmware version	26
7.8) Acoustic and optical signalling chart (led light and buzzer) in CUTTING MODE.....	26
8. MAINTENANCE.....	27
8.1) Thorough cleaning of battery pump	27
8.2) Topping up the oil.....	27
8.3) Thorough cleaning of cutting head	27
8.4) Metal carrying case	28
8.5) Storage	28
9. RETURN TO CEMBRE FOR OVERHAUL	28



**DECLARATION OF CONFORMITY -
DECLARATION DE CONFORMITE - KONFORMITÄTSERKLÄRUNG -
DECLARACIÓN DE CONFORMIDAD - DICHIARAZIONE DI CONFORMITÀ**

We Nous Wir Nos Noi: **CEMBRE S.p.A. Via Serenissima, 9 – 25135 Brescia (Italy)**

Declare under our sole responsibility that the product - *Déclarons sous notre seule responsabilité que le produit*
- Erklären in alleiniger Verantwortung dass das Produkt - *Declaramos bajo nuestra responsabilidad que el producto*
- Dichiariamo sotto nostra unica responsabilità che il prodotto:

B68RC3-85 B68RC3-96 B68RC3-120 B68RC3-85E B68RC3-96E B68RC3-120E

To which this declaration relates is in conformity with the following standard(s) or other normative document(s) -
Auquel cette déclaration se réfère est conforme à la (aux) norme(s) ou autre(s) document(s) normatif(s) -
Auf dass sich diese Erklärung bezieht, mit der/den folgenden Norm(en) oder dem/den normativen Dokument(en)
über einstimmt - *Al que se refiere esta declaración, cumple la(s) norma(s) u otro(s) documento(s) normativo(s)* -
Al quale si riferisce questa dichiarazione è conforme alla(e) norma(e) o altro(i) documento(i) normativo(i):

EN ISO 12100 EN 62841-1

Following the provisions of EU directive(s) - *Conformément aux dispositions de(s) directive(s) EU* -
Gemäß den Bestimmungen der EU Richtlinien - *De acuerdo con las disposiciones de la(s) directiva(s) EU*
Conformemente alle disposizioni della(e) direttiva(e) EU:

2006/42/EC 2011/65/EU 2014/30/EU

Person authorised to compile the technical file - *Personne autorisée à constituer le dossier technique* -
Person die bevollmächtigt ist, die technischen Unterlagen zusammenzustellen -
Persona facultada para elaborar el expediente técnico - Persona autorizzata a costituire il file tecnico:

Gianluca Cama via Serenissima, 9 – 25135 Brescia (Italy)

Brescia **02-08-2021**



CEMBRE

Felice Albertazzi
CHIEF SALES & MARKETING OFFICER
Cembre S.p.A.



DECLARATION OF CONFORMITY

We: **CEMBRE S.p.A. Via Serenissima, 9 – 25135 Brescia (Italy)**

Declare under our sole responsibility that the product:

B68RC3-85 B68RC3-96 B68RC3-120 B68RC3-85E B68RC3-96E B68RC3-120E

To which this declaration relates is in conformity with the following standard(s) or other normative document(s):

EN ISO 12100 EN 62841-1

Following the provisions of the UK Legislation(s):

S.I. 2008/1597 S.I. 2012/3032 S.I. 2016/1091

Brescia **02-08-2021**



CEMBRE

Felice Albertazzi
CHIEF SALES & MARKETING OFFICER
Cembre S.p.A.





THORNE &
DERRICK
INTERNATIONAL

Thorne & Derrick
+44 (0) 191 410 4292
www.powerandcables.com