Due to Biohit's continuing R&D effort, specifications may change without prior notice. Biohit Proline innovations are covered by multiple patents including U.S. Pat. 5,343,769, U.S. Pat. 5,505,097 and patents pending. Biohit eLINE® is a registered trademark of Biohit Plc.
1. INTENDED USE

This liquid handling device is designed and manufactured to be used with the IVD-product as an IVD-accessory and as a stand alone laboratory equipment.

2. PRODUCT DESCRIPTION

The Biohit cLINE Lite is an electronic dispenser for the multiple dispensing of the liquids. The dispenser offers you the latest technology and innovations in the field of the hand held liquid handling devices. The attractive and ergonomic design of the cLINE Lite together with an unique electronic tip ejection operation take the effort out of multiple dispensing and reduce the risk of repetitive strain injuries (RSI) that are common in mechanical pipetting.

The microprocessor controlled system and the superior construction of the Biohit cLINE Lite Dispenser enable maximum liquid handling performance with high levels of accuracy and precision.

The cLINE Lite Dispenser uses positive displacement principle, and is thereby an ideal tool for:
- Long pipetting series
- Viscous, infectious and high vapour pressure liquids
- Radioactive and toxic liquids

Biohit cLINE Lite Dispenser

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>73000X</th>
</tr>
</thead>
<tbody>
<tr>
<td>X: 0=Without adaptor; 1= With universal AC-adaptor (Euro, USA/Jpn, UK and China plugs)</td>
<td></td>
</tr>
</tbody>
</table>

Biohit Dispenser Tips

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Tip volume (ml)</th>
<th>Type</th>
<th>Volume min/max(μl)</th>
<th>Increment (μl)</th>
<th>Number of dispensings min/max</th>
<th>Qty/Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>792021</td>
<td>2.5</td>
<td>Non Sterile Pre-sterilised</td>
<td>25/2500</td>
<td>5</td>
<td>1/100</td>
<td>100</td>
</tr>
<tr>
<td>792022</td>
<td>5.0</td>
<td>Non Sterile Pre-sterilised</td>
<td>50/5000</td>
<td>10</td>
<td>1/100</td>
<td>100</td>
</tr>
<tr>
<td>792028</td>
<td>0.2</td>
<td>Non Sterile Pre-sterilised</td>
<td>2/200</td>
<td>0.4</td>
<td>1/100</td>
<td>100</td>
</tr>
<tr>
<td>792029</td>
<td>0.5</td>
<td>Non Sterile Pre-sterilised</td>
<td>5/500</td>
<td>1</td>
<td>1/100</td>
<td>100</td>
</tr>
<tr>
<td>792030</td>
<td>1.0</td>
<td>Non Sterile Pre-sterilised</td>
<td>10/1000</td>
<td>2</td>
<td>1/100</td>
<td>100</td>
</tr>
<tr>
<td>792031</td>
<td>10.0</td>
<td>Non Sterile Pre-sterilised</td>
<td>100/10000</td>
<td>20</td>
<td>1/100</td>
<td>100</td>
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<tr>
<td>792032</td>
<td>25.0</td>
<td>Non Sterile Pre-sterilised</td>
<td>500/25000</td>
<td>50</td>
<td>1/50</td>
<td>25</td>
</tr>
<tr>
<td>792033</td>
<td>50.0</td>
<td>Non Sterile Pre-sterilised</td>
<td>1000/50000</td>
<td>100</td>
<td>1/50</td>
<td>25</td>
</tr>
</tbody>
</table>

*1 adapter included

**Note:** The tips are disposable, do not reuse them!

3. QUICK START

3.1. Unpacking

The Biohit cLINE Lite Dispenser package contains:
- cLINE Lite Dispenser
- Tilting piece
- Instruction manual
- Performance certificate in accordance with ISO 8655-5
- Demo package of the Tips
  - 0.1 ml, 1 pc
  - 0.2 ml, 1 pc
  - 0.5 ml, 5 pcs
  - 1.0 ml, 5 pcs
  - 2.5 ml, 5 pcs
  - 10.0 ml, 5 pcs
  - 25.0 ml, 1 pc
- Adapter for 25 ml tip, 1 pc
- AC-adaptor (if ordered)

Please check that all items are included and no damage has occurred during shipment.
3.2. Charging the Dispenser before first use

The battery is protected against discharging during storage with a plastic protector. Before use remove the plastic protector (Fig. 1).

1. Push the charging buttons simultaneously in order to open the battery cover.
2. Remove the plastic protector.

Note: It is recommended to charge the pipettor for 12 hours before initial use. The pipettor may only be charged with original Biohit rLINE Charging Stand, Charging Carousel or Biohit rLINE AC adaptor (See Section 3.)

3.3. Operating Instructions

The control and programming of the Biohit rLINE Lite Dispenser is performed using the display, keyboard, operating buttons and tip. (Fig. 2 and 3.)

![Diagram of Biohit rLINE Lite Dispenser]

Fig. 1.

1. ➡️ ➡️ ➡️ ➡️

Fig. 2.

Fig. 3.
3.3.1. Display

Note: When the dispenser is not connected to the charging unit the dispenser/display will automatically hibernate after 10 minutes. The dispenser can be switched on by pressing any key.

3.3.2. Operating Modes

The cLINE Lite Dispenser features multiple dispensing mode with Tip Guide. The Tip Guide is a unique built-in guide that selects the optimal tip size according to selected volume and number of dispensings.

3.3.3. Keyboard and operation buttons

Activates the speed function
Changes volume, aliquots and speed
Confirms the settings
Ejects the tip
START: Triggers the pipetting operations and confirms the selected tip

3.3.4. Reset Button

To reset the dispenser, press the reset button on the battery cover. The display shows E and TIP in blinking form and pressing the tip ejector button will reset the pipettor to the d-mode.

Note: The dispenser should never be reset during pipetting! Resetting will cause the plunger to move to the home position and it will empty the contents of the tip. The tip is also ejected in the end.

3.3.5. Start Button

The start button triggers the aspiration and dispensing operations according to the selected operating mode. Only a soft touch is required to operate the button.

3.3.6. Tip Attachment and Ejection

Tip attachment
1. Push the tip into the tip connector. Make sure that the tip is properly attached. (Fig. 4.)
2. Confirm the tip size by double clicking the Start-button according the instruction on the page 15.

Releasing the tip:
1. Press the Tip Ejection button. The tip is released immediately (Fig. 5.)

Note: After the dispensing cycle has been completed a small residual amount of fluid may have been left in the tip. During the tip ejection it is possible that a part of the remaining fluid comes out of the tip. Therefore it is recommended that the tip ejection is performed above a waste container.
4. CHARGING OF THE DISPENSER

The Biohit cLINE Lite Dispenser should be charged using the original Biohit cLINE Charging Stand, Charging Carousel or AC-adaptor.

When the dispenser is properly connected to the charger, the led indicator (Fig. 6.) lights up and stays on as long as the dispenser is connected to the charger.

When the dispenser requires charging, the battery symbol and “lo bat”-text will appear in the display (Fig. 6.). You need to confirm that by pressing “enter”, only after that you can complete your work, and/or start charging the dispenser. Please note that if “enter” is not pressed the dispenser will not start charging, even placed in charging stand/connected to AC-adaptor.

![Led indicator and Battery symbol](image)

Fig. 6.

**Note:** In case you continue to work with the dispenser after the low battery-alarm, the battery will eventually be completely discharged. Then the battery-symbol and led indicator start to blink, and there is no response from operating buttons. Charge the dispenser.

Initial charging of 30 minutes is required before use, if the battery is totally discharged. During that time the “Load”-text is displayed and you can’t use the dispenser.

When the text disappears from the display, you can continue to work with the dispenser keeping it still connected to the charger.

4.1. Charging with the Biohit cLINE Charging Stand and Charging Carousel

The Biohit cLINE Charging Stand and Carousel are desktop charging units.

The Charging Stand accommodates one Biohit cLINE and Charging Carousel four Biohit cLINE Dispensers.

The Charging Stands and Carousels operate through the metal contacts placed in the sides of the Dispenser and the head of the Charging unit. (Fig. 7.)

Before operating the AC-adaptor must be connected to the socket at the rear of the Charging Stand (Fig. 7.) as well as to the electrical outlet. Before connecting the AC-adaptor to the electrical outlet, check that its voltage setting corresponds to the voltage setting of your electrical outlet.

**Note:** The Charging Carousel is used to charge the dispenser without the tip. If you need to charge the dispenser with the tip attached, you can use the Charging Stand with the Tilting Piece mounted (Fig. 8.).

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>730961</td>
<td>Biohit cLINE Charging Stand</td>
</tr>
<tr>
<td>730991</td>
<td>Biohit cLINE Charging Carousel</td>
</tr>
</tbody>
</table>

With universal AC-adaptor (Euro, USA/Jpn, UK and China plugs)

1. Check that the plastic protector is removed and the battery cover is properly closed
2. Place the dispenser into the Charging unit. Make sure that the metal contacts at the sides of the dispenser are properly fitted to the tracks of the metal contacts in the Charging head.
3. When charging, the battery symbol and the LED indicator will be displayed. The charging time for completely discharged batteries is 6 hours (initial charge 12 hours).
4. When the battery is fully charged the battery symbol disappears from the display. Otherwise the display will stay on and other information on the display will be visible.

4.2. Charging through direct charging system

The AC-adapter supplied with the Biohit cLINE Lite Dispenser or Charging Stand can be used for direct charging of the Biohit cLINE Lite Dispenser. The socket for the AC-adapter is placed at the back of the dispenser (Fig. 9.)

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>731108</td>
<td>Biohit cLINE universal AC-adapter, (Euro, USA/Jpn, UK and China plugs)</td>
</tr>
</tbody>
</table>

1. Before connecting the AC-adapter to the electrical outlet, check that its voltage settings corresponds to the voltage settings of the electrical outlet.
2. Check that the battery protector is removed and the battery cover is properly closed.
3. Connect the AC-adapter to the electrical outlet as well as to the socket at the back of the dispenser
4. The charging time is 6 hours for the completely discharged battery.
5. When the battery is fully charged the battery symbol disappears from the display. Otherwise the display will stay on and other information on the display will be visible.

Note: It is possible to continue pipetting while the cLINE Lite Dispenser is charged through the AC-adapter. With fully discharged battery 30 minute initial charging is recommended before continuing the pipetting.

4.3. Charging Recommendations

When the cLINE Lite Dispenser is not in use it is recommended to keep it always in the charging unit. This ensures that the battery is kept fully charged and the pipettor is always ready for use.

However, during long storage periods (holidays etc.) it is recommended to disconnect the Charging Stand and Carousel from the mains outlet. It is also advisable to remove the battery pack from the dispenser. This protects the batteries against discharging during the long storage period.

Note: The battery won't get damaged when the dispenser is kept on the charging unit; the charging process is intelligently controlled by a microprocessor.

Note: If battery is kept as full as possible, it will lengthen its lifetime.

4.4. Electrical specifications

Battery
- Rechargeable NiMH battery back with protection circuit
- 4.8 V, 500 mA
- Charging time 6 hours for empty batteries
- Initial Charging 12 hours

AC-adapter for Charging Stand or direct charging
- Input voltages and main plug according to local requirements
- Output voltage 9 VDC, 360 mA

AC-adapter for Charging Carousel
- Input voltages and main plug according to local requirements
- Output voltage 9 VDC, 1200 mA

5. PROGRAMMING PRINCIPLES

Multiple dispensing

The Biohit cLINE Lite Dispenser features multiple dispensing mode with unique built-in TIP GUIDE that selects the optimal tip size for you.

In this mode the Dispenser performs repetitive dispensing of a selected volume. The sum of the dispensing aliquots and an automatically selected excess volume is aspirated into the tip. The excess volume is needed to ensure equal operating conditions for each dispensing step.
5.1. Programming Map

Multiple dispensing using Tip Guide

Adjust the dispenser to the initial position by pressing the Tip Ejection button.

Select the aliquot volume

Confirm the selection

Select the number of aliquots

Confirm the selection

Select the tip size
Tip Guide: Shows the best tip option. If there are also other tip options available the TIP SIZE text is blinking. View the other options by pressing the Arrow up/down key.

Do you want to change the speed?

YES       NO

Select the speed in

Confirm the selection

Select the speed out

Attach the tip. Note! The TIP text is blinking on the display.

Confirm the programming by double clicking the START button.

Start pipetting!
Note! Dispenser is now fixed to the selected tip!

Tip confirmation after tip ejection

If you want to continue with the same tip size — 2 x

Tip ejection — If you want to change the tip size — 2 x

Change the aliquot volume — 2 x

- the aliquot volume — 2 x
- the number of aliquots — 2 x
- the tip size

5.2. Programming of the multiple dispensing mode using the TipGuide

1. Adjust the Dispenser to the initial position by pressing \( \downarrow \).
   
   Note: The tip will be ejected if it is attached!
   
   \[ \text{tip} \text{ ml} \]

2. Select the desired aliquot volume by pressing \( \uparrow \).
   
   Note: When holding down the \( \uparrow \) the volume display start to scroll faster
   
   \[ \text{count} \]

3. Press \( \downarrow \) to confirm the selection

4. Select the number of aliquots by pressing \( \uparrow \)

5. Press \( \downarrow \) to confirm the selection

6. Now the TipGuide shows the best tip option. If there are also other tip options available, the TIP-size text is blinking. View the other options by pressing \( \uparrow \)

7. Confirm your selection by pressing \( \uparrow \) and continue from step 12.
   Or press \( \uparrow \) to change the aspiration/dispensing speeds.
8. Select the speed in with \( \frac{a}{1} \) (1=Min and 5=Max)
9. Press \( \frac{b}{c} \) or \( \frac{d}{e} \) to confirm selection and to display the speed out
10. Select the speed out with \( \frac{f}{g} \) (1=Min and 5=Max)
11. Press \( \frac{h}{i} \) to confirm selection
12. Now the text “TIP” is blinking on the display. Attach the tip
13. Confirm the programming by double clicking the START-button

Note: Dispenser is now fixed to the selected tip volume range

14. Place tip into the liquid and press START-button \( \frac{j}{k} \) to aspirate

15. Discard the prime excess by pressing the START-button

16. To dispense, position the tip above the receiving vessel and press START-button and repeat until the cycle is completed

17. Finally position the tip to discard excess volume and click twice the START-button

18. Now the Dispenser is ready for next pipetting cycle

Note: It is also possible to continue to aspirate and dispense the same volume without the empty function. To continue, keep the START-button pressed during the last dispensing and within one second the direction of the arrow will change. Keeping the START button depressed, place the tip into the liquid again and then release the START button to aspirate the next sample.

If you continue with the same tip
a. Change the volume by pressing \( \frac{l}{m} \)
b. Confirm your selection by pressing \( \frac{n}{o} \)
c. Change the number of aliquots by pressing \( \frac{p}{q} \)
d. Confirm your selection by pressing \( \frac{r}{s} \)

If you want to change the tip size or tip, go to step 1.
If you want to eject the tip, press \( \frac{t}{u} \)

Note: It is possible to interrupt the dispensing by pressing the ENTER button \( \frac{v}{w} \). The display shows E and the tip can be emptied by pressing the START button \( \frac{x}{y} \).

Note: When aspirating the liquid using the 25 or 50 ml tip, let the tip stay in the liquid a few seconds after the plunger has stopped moving. This way you will ensure that all liquid has been aspirated into the tip.

Note: It is possible to work with aqueous liquids and liquids with higher viscosity. However, it is recommended always to choose the tip with the smallest applicable volume in conjunction with high viscosity liquids. Please note, the specifications are given in accordance with ISO 8655-5.

6. MAINTENANCE

6.1. Cleaning the dispenser

To ensure trouble-free operation it is recommended to apply regular maintenance and cleaning to Biohit c.LINE Lite Dispenser.

To clean and decontaminate the outer surface use Proline Bioclean (Cat. No. 724004) and a soft lint-free cloth. Gently clean the surface of the pipetor with the moistened cloth and wipe dry. It is possible to use ethanol (70%) isopropanol (60%) or mild detergent as a cleaning agent.

Note: Remove the battery pack from the dispenser prior the cleaning!
It is recommended always to use gloves when cleaning the dispenser. Do not let the liquid enter the pipettor handle!
6.2 Battery replacement

The design of the Biohit cLINE dispenser enables fast and easy battery replacement. The battery replacement pack includes 4 NiMH batteries fixed to the battery cover. If the batteries do not hold a sufficient charge for proper operation follow these steps for replacement of the battery pack.

1. Hold the dispenser in a horizontal position with the display facing up.
2. Press the two charging contacts simultaneously to release the battery pack.
3. Place the new battery pack into the compartment and close the battery cover by pressing it lightly.

Note: The battery cover pack fits in to the compartment one way only. If the pack is inserted incorrectly the battery cover will not close properly.

Note: Only use battery packs supplied by the manufacturer. The use of any other type of battery will immediately void the warranty!

7. TROUBLESHOOTING

The Biohit cLINE Lite Dispenser have an onboard monitoring program to control the performance of each pipetting action. If any error message appears to the display it means that the Dispenser has been unable to perform the attempted action properly. In case of an error the display will show ER and PRSS ENT. message. To clear the message please follow these steps:

1. Clear the error message by pressing . The display will show E and .
2. Press the and the blunger moves to the home-position. The display will show E and TIP.
3. Remove the tip by pressing the tip ejection button .

Note: Repeated occurrence of error messages indicates an internal error causing failure of the Dispenser to complete the execution of the pipetting. The Dispenser therefore needs to be returned to the nearest Biohit Service Centre or your local Biohit service representative for repair.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display is blank and there is no response when pressing the buttons</td>
<td>Battery is fully discharged</td>
<td>Recharge the battery</td>
</tr>
<tr>
<td>Leakage or pipetted volume too small</td>
<td>Tip incorrectly attached</td>
<td>Attached new tip</td>
</tr>
<tr>
<td></td>
<td>Unsuitable tip</td>
<td>Attach firmly</td>
</tr>
<tr>
<td></td>
<td>Foreign particles between the tip and tip connector</td>
<td>Use original tips</td>
</tr>
<tr>
<td>Dispenser out of the established specifications</td>
<td>Unsuitable tip</td>
<td>Clean the tip connector and attach new tip</td>
</tr>
<tr>
<td></td>
<td>Instrument damaged</td>
<td>Use original tips</td>
</tr>
<tr>
<td>Tip ejector jammed or moves erratically</td>
<td>Tip connector has been contaminated</td>
<td>Return to your Biohit service representative for servicing</td>
</tr>
<tr>
<td></td>
<td>Tip connector mechanism damaged</td>
<td>Clean the Tip connector</td>
</tr>
<tr>
<td>Continuous error message</td>
<td>Instrument damaged</td>
<td>Return to your Biohit service representative for servicing</td>
</tr>
</tbody>
</table>
8. WARRANTY INFORMATION

Biohit eLINE Lite Dispenser is covered by a warranty for two years against defects in material and workmanship (excluding the battery pack). Should your dispenser fail to function according to specifications at any time, please contact your local Biohit representative immediately.

ANY WARRANTY WILL, HOWEVER, BE DEEMED AS VOID IF FAULT IS FOUND TO HAVE BEEN CAUSED BY MALTREATMENT, MISUSE, UNAUTHORIZED MAINTENANCE A OF SERVICE OR NEGLIGENCE OF REGULAR MAINTENANCE AND SERVICE, ACCIDENTAL DAMAGE, INCORRECT STORAGE OR USE OF THE PRODUCTS FOR OPERATIONS OUTSIDE THEIR SPECIFICATIONS, CONTRARY TO THE INSTRUCTIONS GIVEN IN THIS MANUAL OR WITH OTHER THAN THE MANUFACTURER’S ORIGINAL TIPS.

Each Biohit eLINE Lite Dispenser is tested before shipping by the manufacturer. The Biohit Quality Assurance Procedure guarantees that the Biohit eLINE Lite Dispenser you have purchased is ready for use.


9. PERFORMANCE SPECIFICATIONS

Note: The manufacturer’s specifications should be used as guidelines when establishing your own performance specifications accordance with ISO 8955-3.

eLINE Lite Dispenser and Biohit Dispenser Tip system

<table>
<thead>
<tr>
<th>Tip volume (ml)</th>
<th>Volume min./max (μl)</th>
<th>Increment (μl)</th>
<th>Test volume (μl)</th>
<th>Inacc. (%)</th>
<th>Impr. (%)</th>
<th>Number of dispensing min/max</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>1/100</td>
<td>0.2</td>
<td>100</td>
<td>1.00</td>
<td>0.50</td>
<td>1/100</td>
</tr>
<tr>
<td>0.2</td>
<td>2/200</td>
<td>0.4</td>
<td>200</td>
<td>1.00</td>
<td>0.50</td>
<td>1/100</td>
</tr>
<tr>
<td>0.5</td>
<td>5/500</td>
<td>1</td>
<td>500</td>
<td>1.00</td>
<td>0.60</td>
<td>1/100</td>
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<tr>
<td>1.0</td>
<td>10/1000</td>
<td>2</td>
<td>1000</td>
<td>0.50</td>
<td>0.20</td>
<td>1/100</td>
</tr>
<tr>
<td>2.5</td>
<td>25/2500</td>
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<td>2500</td>
<td>0.60</td>
<td>0.20</td>
<td>1/100</td>
</tr>
<tr>
<td>5.0</td>
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<td>5000</td>
<td>0.60</td>
<td>0.15</td>
<td>1/100</td>
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<td>1/100</td>
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<tr>
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<td>50</td>
<td>25000</td>
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<td>100</td>
<td>50000</td>
<td>0.30</td>
<td>0.15</td>
<td>1/50</td>
</tr>
</tbody>
</table>

Note: The specifications are valid only to the eLINE Lite Dispenser and Biohit eLINE Dispenser Tip combination.
10. RECYCLING INSTRUCTION (WEEE)

In compliance with European Directive, WEEE (2002/96EC) on waste and reducing of hazardous substances in electrical and electronic equipments, this device must not be recycled as unsorted municipal waste. Instead this device must be collected separately in accordance the local recycling regulations. The solid bar used in conjunction with the crossed-out wheeled bin indicates that the product was put on the European market after 13 August 2005.