Biotage® Extrahera™ LV-200

Installation and Safety

Biotage®

Biotage® Extrahera™ LV-200

Installation and Safety

CONTENTS

Installation

Warning

- The system must be unpacked and installed by an authorized Biotage service engineer.
- Follow regional safety practices when handling and moving shipping boxes and containers, and moving the system.
- Observe general and specific safety regulations for the use of the system and its accessories and consumables at all times, in order to reduce the risk of personal injury, fire, and explosion; see "Safety Requirements" on page 10.

Download Biotage® Extrahera™ User Documentation

The following user documentation is supplied with the system and can be downloaded at www.biotage.com:

- Biotage® Extrahera™ LV-200 Installation and Safety, P/N 417408 (this document)
- Biotage® Extrahera™ LV-200 User Manual, P/N 417251
- Biotage® Extrahera™ LV-200 Safety Translations, P/N 417409
- Biotage® Extrahera™ GLP User Manual, P/N 417250

If you have problems downloading the user documentation, please contact your local Biotage representative. See contact information on the back of this document or visit our website www.biotage.com.

Software License Agreement

Biotage Sweden AB licenses the Biotage® Extrahera software installed on your system to you only upon the acceptance of all of the terms and conditions in the software license agreement.

By using the software, you consent to be bound by and are becoming a party to that agreement.

To read the software license agreement, either request a copy from your local Biotage representative before the installation or read it on your Biotage® Extrahera system by pressing **Licenses** in the software's **About** view.

Delivered Items

Note: We recommend that the boxes and packing materials are kept by the customer in case the system needs to be returned for service or moved to another location.

Check the delivery against the shipping documentation to ensure that all parts are included in the shipment. If any part of the order is missing or damaged, please contact Biotage® 1-Point Support™.

Site Requirements

Before the system is installed by an authorized Biotage service engineer, the installation site should be prepared as follows:

Location

The system must be either connected to a ventilation system or placed in a well-ventilated fume hood or an equivalent enclosure to reduce the risk of exposure to harmful gases. The ventilation system or fume hood must be capable of exhausting 6 cubic meters/min (212 cubic feet/min).

Ensure that the fume hood or bench and the location meet the requirements of the system regarding dimensions, weight, electrical supply, vacuum supply, gas supply, pollution degree, ambient temperature, and humidity; see "System Requirements" on page 7.

Connections

Ventilation system: If the system is to be installed on a benchtop (outside a fume hood or equivalent enclosure), an air duct adapter supplied with the system must be installed on the top of the ventilation fan to allow connection to suitably sized ventilation tubing.

The outer diameter of the air duct adapter is 159.0 ± 0.3 mm (6.26" ± 0.01") and the inner is 152.7 ± 0.3 mm (6.01" ± 0.01"), i.e. the 160 mm tube should be mounted outside the air duct adapter and the 6" tube on the inside of the air duct adapter.

Electrical supply: Connect only to a grounded (earthed) outlet.

Vacuum supply: The vacuum tube supplied with the system has a 6 mm (0.24") outer diameter and 4 mm (0.16") inner diameter.

Gas supply: The gas tube supplied with the system has a 6 mm (0.24") outer diameter and 4 mm (0.16") inner diameter.

Package Weight and Dimensions (W x D x H)

The total weight of the package including the system is 125 kg (276 lbs)

The system is supplied on pallet and the dimensions of the package (+ pallet) are:
1230 x 840 x 800 mm (48.4" x 33.1" x 31.5").

Use suitable lifting equipment when moving the package.

External fire protection

External fire protection should be installed according to local regulations for equipment operating unattended.

Move the System

Warning

» Before moving the system, please read and observe the safety requirements in "Safety Requirements" on page 10.

If you need to move the system within the laboratory or between laboratories in the same building, follow the instructions below. If you need to ship the system, please contact Biotage® 1-Point Support™ for instructions.

Prepare and Move the System

1. Prepare the new site according to the site requirements on page 1.
2. Clean the waste tubing as described in the user manual supplied with the system.
3. Empty the system of liquids by flushing it with air:
   a. Remove the solvent inlet lines from their bottles and place them in an empty, clean bottle.
   b. Ensure that you have five empty solvent reservoirs in the solvent rack in position **5** on the working area.
   c. Press **Maintenance** in the main menu.
   d. Press **Flush Solvent Inlets...**.
   e. Enter the flush volume for S1. 25 mL is required to empty the solvent inlet line and pump of liquid.
   f. Press **Flush** for S1. When done, visually check that there is no solvent left.
   g. Repeat steps e through f for the other solvent inlet lines (S2-S5).
4. Remove the solvent racks in position **5** and **6** (if used for solvents) on the working area and empty the reservoirs.
5. Remove all accessories and consumables inside the system, i.e. the pipette tip waste bin, plates, racks, etc.
6. Turn off the vacuum pump or, if your system is connected to another vacuum source, close the valve.
7. Shut down the system by pressing **Shut Down** in the main menu or login view (in the Extrahera GLP software) and then **Yes** to confirm.
8. When the message saying that it is safe to turn off the system appears on the screen, turn off the system. The mains switch is located on the right hand side at the rear of the system.
9. Unplug the power cord from the power outlet.
10. Turn off the gas supply/supplies and disconnect the gas tubes connected to the pressure regulator and filter unit located at the rear of the system.
11. Disconnect the waste outlet tube from the waste reservoir and empty the waste reservoir.
12. Clean the interior of the system and the accessories as described in the user manual supplied with the system.
13. Clean the touch screen and the exterior of the system, using a soft and clean cloth. The cloth can be dry or lightly dampened with a neutral detergent or alcohol.
14. If you need to remove the touch screen (computer):
    a. Adjust the ball mount angle so that the rear of the touch screen can be accessed; see Figure 1.
    b. Remove the lower panel by unscrewing the six screws using a Philips #2 screwdriver.
    c. Disconnect the power connector by unscrewing its locking ring.
    d. Disconnect the two Ethernet cables and any USB devices.
    e. Remove the touch screen by loosening the ball mount.

    Note: The touch screen must be placed on a flat and level surface to avoid damage.

Figure 1. The rear of the touch screen (computer).

15. Attach the four lifting handles to the system; see Figure 2. The handles are supplied with the system.

Figure 2. The four lifting handles supplied with the system must be used when moving the system.

16. The system weighs 80 kg (176 lbs). Carefully lift the system using the four lifting handles and place it on a trolley that can support the weight of the system. Four persons are required when lifting the system.
17. Move the trolley and the rest of the equipment (the pipette tip waste bin, waste reservoir, vacuum pump (if used), solvent bottles, etc.) to the new location.

Place the System in the New Location

18. Carefully lift the system and place it in a well-ventilated fume hood or on a bench. Four persons are required when lifting the system. Place the system so that the mains switch is easy to access.

Connect the System to Your Network (GLP) and Connect the Touch Screen

19. If you have disconnected the touch screen, reconnect it by reversing the instructions in step 14.

    Note: Do not mix up the Ethernet cables. Connect according to the labeling on the cables and the ports (**LAN 1** and **LAN 2**).

20. If you have the Extrahera GLP software and you want to connect the system to your network, connect it via the **LAN** port located on the right hand side of the system.

Connect Air and/or Nitrogen Supplies

21. Before connecting air and/or nitrogen to the system, the pressure head must be removed to protect it from contamination:

    a. Remove the two screws holding the pressure head to the pressure unit using the T20 Torx screwdriver supplied with the system; see Figure 3.

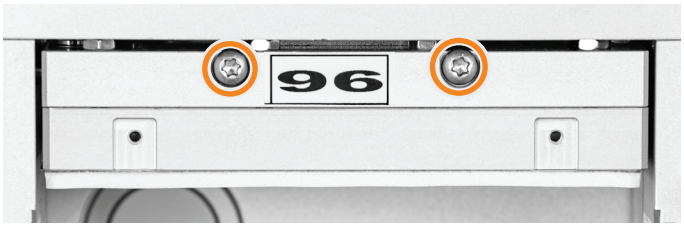


Figure 3. The two screws attaching the pressure head to the pressure unit.

    b. Remove the pressure head by pulling it down and then pulling it out.

    c. Disconnect the gas tubes from the pressure head by pushing the collar of each connector against the fitting and pulling the tubing out; see Figure 4.

    d. Put the pressure head on a clean and lint-free surface.

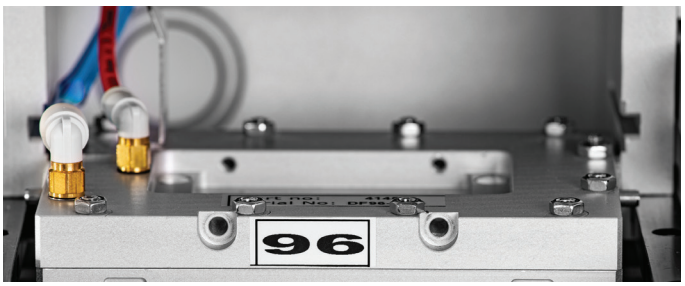


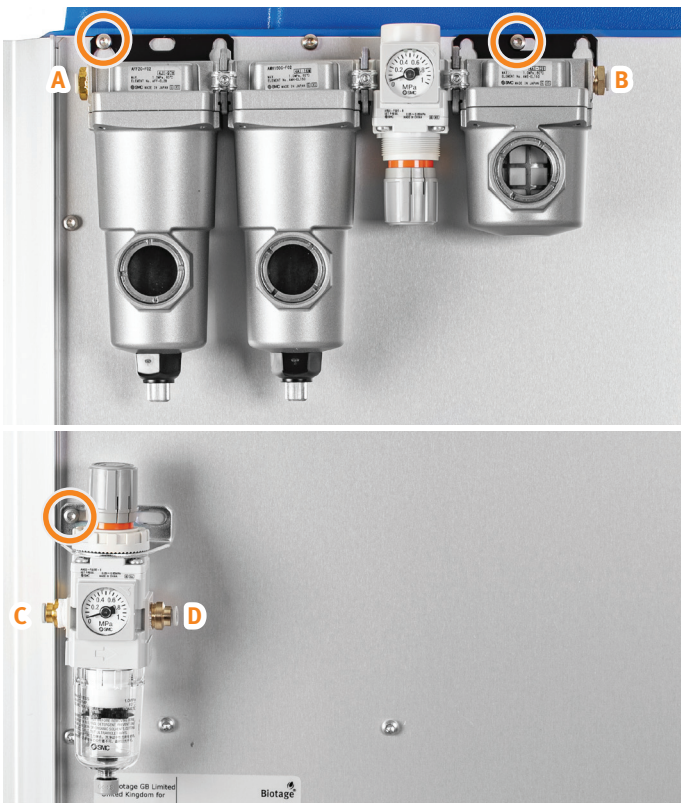
Figure 4. The two gas tubes connected to the pressure head.

22. Connect a pressurized air or nitrogen supply to the filter unit; see A in Figure 5. Set the pressure to 6 ± 0.2 bar (0.6 ± 0.02 MPa; 87 ± 3 psi).

23. Connect a pressurized air or nitrogen supply to the pressure regulator; see C in Figure 5.

    The gas connected to the **AIR** port is used to seal the plate/columns. The pressure should be adjusted according to how many positions in the extraction plate or column rack that are populated; see "System Requirements" on page 7.

    Note: If you need to change the position of the filter unit and/or the pressure regulator on the back panel, loosen the three screws holding them using the T20 Torx screwdriver supplied with the system. In Figure 5, the filter unit has been mounted in the top left corner of the back panel and the pressure regulator in the lower left part.



A	Connect to supply	**B**	Connect to **AIR** port
C	Connect to supply	**D**	Connect to **N₂** port

Figure 5. The setup of the filter unit (at the top) and the pressure regulator (at the bottom).

Purge the System

24. Connect the system to a grounded (earthed) power outlet with the correct mains voltage and frequency.
25. Turn on the system. The mains switch is located on the right hand side at the rear of the system.
26. Purge the system:
    a. Press **Maintenance** in the software's main menu.
    b. Press **Manual Control...**and then **Close** in the **Door** field.
    c. Press **Move Out** in the **Pressure Unit** field.
    d. In the **Pressure Head - Processing** field, enter 0.5 bar in the **Pressure** text box and 15 seconds in the **Time** text box; see Figure 6.
    e. Press **Start**.
    f. Press **Open Door**.

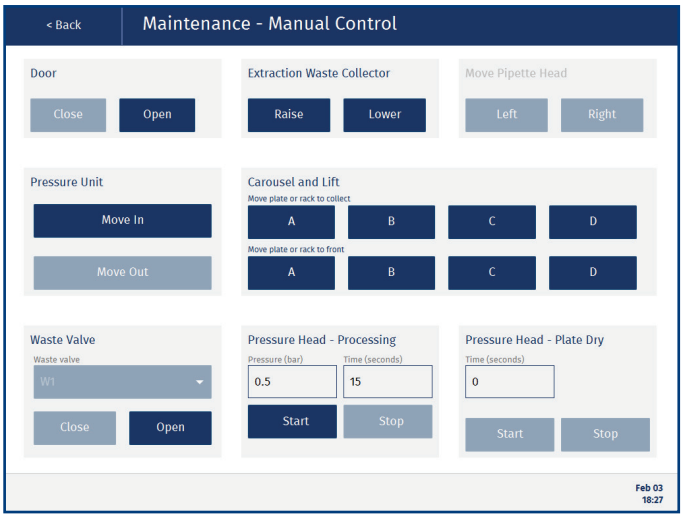


Figure 6. The Manual Control view.

Reinstall the Pressure Head

27. Reconnect the gas tubes to the pressure head. Ensure that they are properly fastened by pulling on them and that they are on the left side of the bracket as shown in Figure 7.

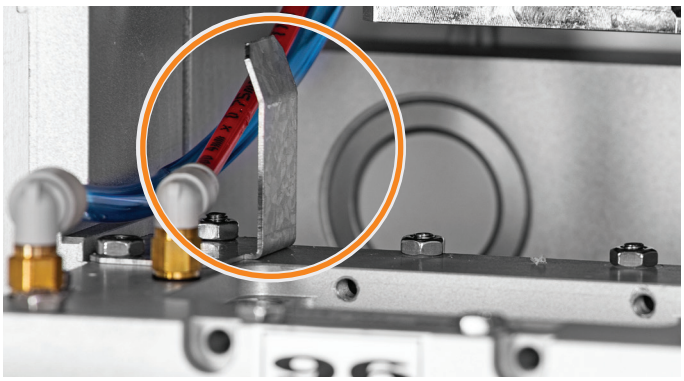


Figure 7. Ensure that the gas tubes are on the left side of the highlighted bracket.

28. Put the pressure head back in place using the two screws. Do not overtighten the screws.

Connect the System to a Ventilation System

29. If the system is not placed in a fume hood, connect the outlet of the Extrahera top ventilation to a ventilation system:
    a. Connect an air duct adapter from Biotage to the outlet of the Extrahera top ventilation.
    b. Connect a ventilation tube between the air duct adapter and the exhaust. The outer diameter of the air duct adapter is 159.0 ± 0.3 mm (6.26" ± 0.01") and the inner is 152.7 ± 0.3 mm (6.01" ± 0.01"), i.e. the 160 mm tube should be mounted outside the air duct adapter and the 6" tube on the inside of the air duct adapter. Ensure that the tube cannot be blocked.

Level the System

30. It is important that the system is not tilting backward. Level the system by adjusting the height of the feet. There is a built-in spirit level in the bottom of the system, in the front left corner. See Figure 8.

Figure 8. The built-in spirit level in the bottom of the system, in the front left corner.

Set Up the Solvent and Waste Reservoirs

31. Place the solvent rack with five new, empty solvent reservoirs in position **5** on the working area. Ensure that the solvent feeder is pulled out into the correct position; see Figure 9.

Figure 9. The solvent feeder in position.

32. Place the pipette tip waste bin for used pipette tips below the **WASTE** position on the working area.
33. Place the waste reservoir on the side of the system and connect the waste outlet tube and vacuum to it; see Figure 10.

Note: If using a vacuum pump:

» Ensure that the voltage selection switch on the vacuum pump (located next to the power button) is set correctly before you connect the pump to a grounded (earthed) power outlet; "115/120" corresponds to 100-120 V and "230/240" corresponds to 200-230 V. See Figure 11.

» Ensure that the vacuum pump fumes are directed into a proper ventilation system.

34. Place the solvent bottles on the side of the system and insert the solvent inlet lines into the correct bottles. Ensure to use appropriate caps to prevent harmful solvent vapors from escaping and the contents from being spilled.

Check the Installation

35. Ensure that the power cord and any cables, hoses, and tubing connected to the system cannot come in contact with chemicals. Corrosives and solvents can degrade the cord/cable insulation and dissolve the hoses and tubing. There is a risk of electric shock, fire, and/or equipment damage.
36. Check all the solvent connectors on the back wall (S1-S5); ensure that the ferrules are seated properly and the connectors are finger-tightened. Use caution when finger-tightening fittings to prevent stripped threads or crushed ferrules.
37. Check all tubes and connections for leaks using the **Flush Solvent Inlets** function in the **Maintenance** view. If a leak is detected, tighten the solvent's two screw connectors on the back wall. If air is visible in one of the tubes between the back wall and the solvent feeder, tighten the inlet line connector for that solvent.

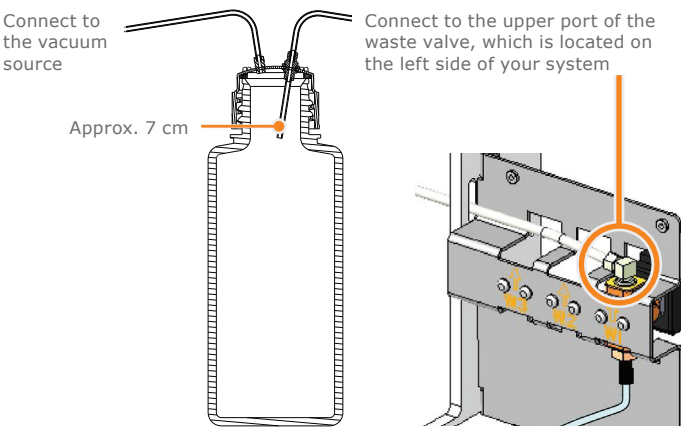


Figure 10. The waste setup

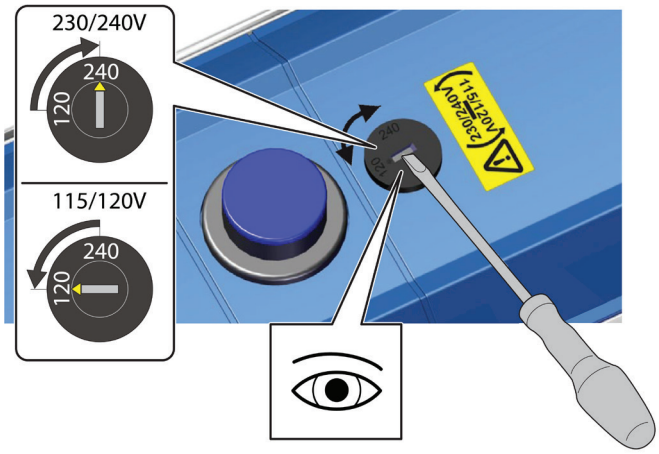


Figure 11. Voltage selection switch.

Upgrade the Biotage® Extrahera™ Software

Please refer to the instructions delivered with the new software.

Connections

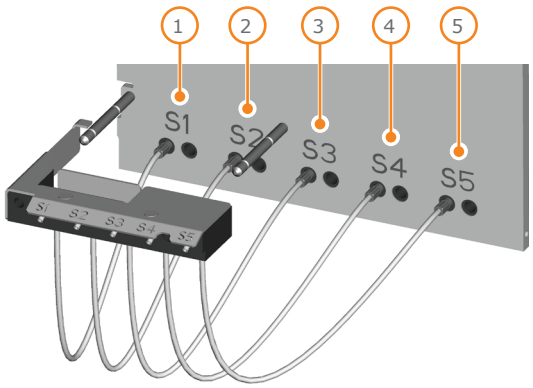


Figure 12. Solvent connections located on the back wall inside the system.

Port	Label	Connect
1	S1	The S1 solvent inlet line (right port) and the S1 solvent feeder tube (left port).
2	S2	The S2 solvent inlet line (right port) and the S2 solvent feeder tube (left port).
3	S3	The S3 solvent inlet line (right port) and the S3 solvent feeder tube (left port).
4	S4	The S4 solvent inlet line (right port) and the S4 solvent feeder tube (left port).
5	S5	The S5 solvent inlet line (right port) and the S5 solvent feeder tube (left port).

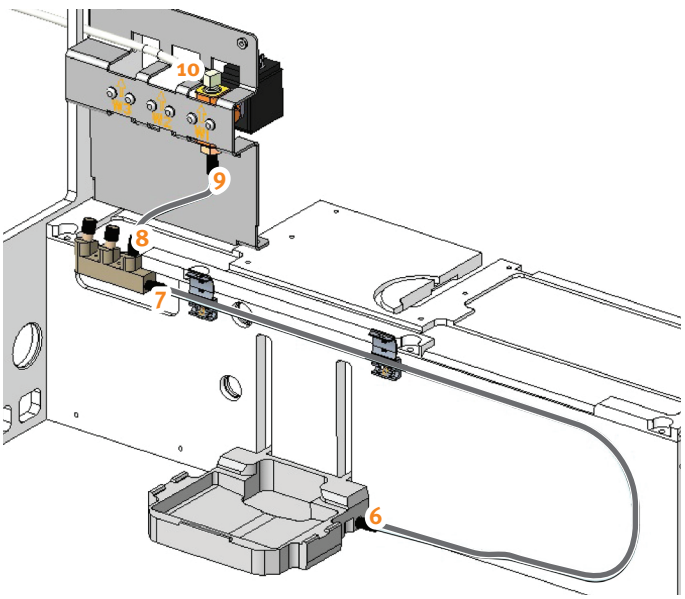


Figure 13. Waste connections located on the back wall inside the system.

Port	Label	Connect
6+7		Waste tube between the extraction waste collector and the waste manifold.
8+9		Waste tube between the waste manifold and the waste valve.
10	W1	Waste outlet tube between the waste valve and the waste reservoir.

For instructions on how to set up the waste reservoir, see Figure 10 on page 5.

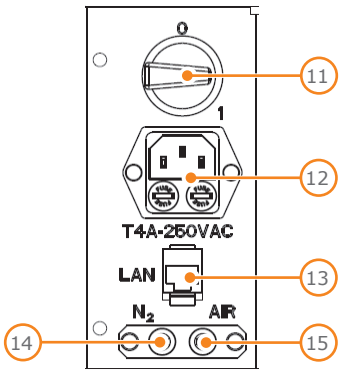


Figure 14. Connections located on the right hand side at the rear of the system.

Port	Label	Connect
11	O/1	Power switch. O = Off and 1 = On.
12	T4A-250VAC	Electrical supply: 100 to 240 V~, 50/60 Hz, 300 VA Fuses: T4A (2 required)
13	LAN	Network. Optional.
14	N_2	The gas applied to the samples through the pressure head. See the gas supply requirements in the technical specification on page 7.
15	AIR	The gas used for the movement of the pressure head. See the gas supply requirements in the technical specification on page 7.

Technical Specifications

System Requirements

Fume Hood/ Ventilation System
The system must be either connected to a ventilation system or placed in a well-ventilated fume hood or an equivalent enclosure to reduce the risk of exposure to harmful gases. The ventilation system or fume hood must be capable of exhausting 6 cubic meters/min (212 cubic feet/min). For more information, see "Site Requirements" on page 1.

Ambient Temperature
Operating temperature: 18°C to 32°C

Storage and transportation temperature: -25°C to 60°C

Humidity
10% to 90% RH

Altitude
Up to 2000m altitude

Location
Indoor use only
Not for wet location

Pollution Degree
The system shall be installed in a level 2 environment in accordance with EN 60664-1.

Electrical Supply
100 to 240 VAC, 50/60 Hz
Connect only to a grounded (earthed) outlet.

Overvoltage category II

Fuses
T4A at the power inlet (2 required)

Maximum Power Consumed
300 VA

Gas Supply
The gas applied to the samples (i.e. the gas connected to the **N_2** port) must be according to ISO 8573-1, classification 1-6-1. This is essential to prevent sample contamination and general fouling of the pressure unit. The filter unit that is supplied with the system delivers according to ISO 8573-1, class 1-x-1. If the gas applied is not according to class x-6-x, an air dryer needs to be ordered separately (P/N 416441SP).

AIR port: 5 L/min (0.18 cubic feet/min), 6 ± 0.2 bar (0.6 ± 0.02 MPa; 87 ± 3 psi) for a fully populated extraction plate/rack and lower to approximately 4 bar (0.4 MPa; 58 psi) when 50% of the plate/rack is populated and 3 bar (0.3 MPa; 44 psi) when 25% of the plate/rack is populated.

N_2 port: 1 L/min (0.04 cubic feet/min) during processing and 70 L/min (2.5 cubic feet/min) during plate dry, 6 ± 0.2 bar (0.6 ± 0.02 MPa, 87 ± 3 psi)

Vacuum Supply
Partial pressure range: < 500 mbar (50 kPa; 7 psi)

Flow rate: ≥ 8.3 L/min (0.29 cubic feet/min)

Weight
80 kg (176 lbs).

Dimensions (WxDxH)
Without touch screen: 610 x 510 x 790 mm (24.0" x 22.1" x 31.1")
With touch screen: 860 x 570 x 790 mm (33.8" x 22.4" x 31.1")

Max Sound Level
65 dB(A)

Liquid Handling

Solvent Inlets
5

Solvents are pumped into five 25 mL reservoirs inside the system (in position **5** on the working area) using the five solvent pumps.

Extra Solvent Rack, Manually Filled

It is possible to have an extra solvent rack with five 25 mL, 40 mL, or 100 mL reservoirs in position **6** on the working area. These extra reservoirs have to be filled manually.

Dead Volume

The dead volume is 4 mL for the 25 mL and 40 mL reservoirs. The 100 mL reservoir has a dead volume of 50 mL for the 50 µL and 200 µL pipette tips and 14 mL for the 1000 µL pipette tips.

Waste Outlet
1

Pipetting Pump
5 to 800 µL

For the 50 µL pipette tip (P/N 417008):
At 5 µL: ±5.0% accuracy and 5.0% CV
At 10 µL: ±5.0% accuracy and 5.0% CV
At 25 µL: ±4.0% accuracy and 2.5% CV
At 50 µL: ±2.5% accuracy and 2.0% CV

For the 200 µL pipette tip (P/N 417009):
At 20 µL: ±5.0% accuracy and 5.0% CV
At 100 µL: ±2.0% accuracy and 1.5% CV
At 200 µL: ±1.5% accuracy and 1.0% CV

Processing Format
- 96-well extraction plates
- 96-array plates for 1 and 2 mL wells
- 96-position extraction racks for 1 mL (tabless) columns (A format)
- 96-position tip racks for 200 µL, 300 µL, and 1 mL DFE column tips

Processing Pressure
0 to 5 bar

Interfaces

Touch Screen	12.1" Compatible with nitrile gloves
Ethernet LAN	Complies with IEEE 802.3 (ANSI 8802-3)
USB	USB 2.0

Clog Detection (GLP Only)

With an Extrahera GLP software license installed on your system (sold separately), clog detection is available for load, wash, and elute operations in the SPE, SLE, and Filtration+ methods.

Supported Solvents

Solvent/Solvent Combination	Clog Detection Compatibility
Acetone	Good
Acetonitrile	Excellent
Chloroform	Poor
Dichloromethane	Poor
Diethyl ether	Poor
Dimethylformamide (DMF)	Excellent
Dimethylsulfoxide (DMSO)	Excellent
Ethanol	Excellent
Ethyl acetate	Good
Heptane	Good
Hexane	Poor
Isooctane	Good
Isopropanol	Excellent
Methanol	Excellent
Pentane	Poor
Tetrahydrofuran (THF)	Poor
Toluene	Excellent
Water*	Excellent
Methyl tert-butyl ether (MTBE)	Poor
30% IPA	Excellent
5% Ammonium hydroxide	Excellent
4.6M Formic acid	Excellent
DCM/IPA [90:10]	Poor
DCM/IPA [95:5]	Poor
DCM/IPA/NH_4OH [78:20:2]	Poor
DCM/MeOH/NH_4OH [78:20:2]	Poor
MeOH/NH_4OH [95:5]	Excellent

* Includes aqueous based buffers.

Currently Not Supported Consumables

The following Biotage and competitor consumables are not supported when using clog detection:

- Biotage Mikro SPE products
- ISOLUTE® PPT+
- ISOLUTE® PLD+
- ISOLUTE® FILTER+ Plate
- Waters Oasis µElution Plates
- Tecan NBE and Cerex Columns
- 1 mL Columns, 96 Positions Configuration

Approved Corrosive Solvents and Additives

Note: The system contains corrosion sensitive parts. Best practice is to avoid sustained continuous exposure to acidic and basic vapors by always removing the solvent reservoirs when the system is not in use, and cleaning the system following usage. Usage of concentrated strong acids (e.g. TFA and TCA) and strong inorganic acids (e.g. nitric, sulfuric, hydrochloric, and perchloric acids) in the solvent pumps is not supported.

The following solvents are approved for use at the listed concentrations, with the understanding that while performance of the pumps are not affected the solvents and additives will do cosmetic damage to the system.

Solvent Pumps S1-S5	Pipette Pump
10% Acetic Acid	10% Acetic Acid
Acetonitrile	Acetone
5% Ammonium hydroxide	Acetonitrile
Dichloromethane	Dichloromethane
Dimethylformamide (DMF)	Dimethylformamide (DMF)
Dimethylsulfoxide (DMSO)	Dimethylsulfoxide (DMSO)
Ethyl acetate	Ethyl acetate
5% Formic Acid	5% Formic Acid
Hexane	Heptane
0.1M Hydrochloric acid	0.1M Hydrochloric acid
Isopropanol	Isopropanol
Methanol	Methanol
Methyl tert-butyl ether (MTBE)	Methyl tert-butyl ether (MTBE)
2 M NaOH	5% Phosphoric acid
Piperidine	3% Trifluoroacetic acid (TFA)
5% Triethylamine (TEA)	
3% Trifluoroacetic acid (TFA)	

Safety

Intended Use

The Biotage® Extrahera™ LV-200 system from Biotage is intended solely for automating sample preparation. The system has to be operated in a laboratory environment by trained professionals.

All operations must be performed:

- According to the user documentation delivered with the system.
- According to instructions available at www.biotage.com.
- According to instructions provided through dialogs appearing on the screen.
- According to instructions given by the technical support staff from Biotage.
- Within limits set by the system's technical specification.

Failure to follow those instructions and operate within the limits set by the technical specification may result in personal injury and/or equipment damage.

Education, Training, and Competence

It is your responsibility to provide all applicable health and safety regulations to your personnel. You must also ensure that all personnel involved in the operation and maintenance of the system fulfill the following criteria:

- Have the necessary education, training, and competence required for the intended use of the system.
- Observe general and specific safety regulations for the use of the system and its accessories and consumables at all times, in order to reduce the risk of personal injury, fire, and explosion.

Warranty and Liability

See the "Biotage Terms & Conditions of Sale" document at www.biotage.com.

Service

All service must be performed by an authorized Biotage service engineer. Before handing over the system for service, it should be emptied of liquid and cleaned from harmful residues.

It is the responsibility of the customer to inform Biotage 1-Point Support representatives if the system has been used with hazardous biological, radioactive, or toxic samples and/or solvents, prior to any service being performed. When returning equipment to Biotage, this should be done in accordance with the material return procedures supplied separately by Biotage.

Only genuine Biotage accessories must be used in the system.

Safety Features

The ventilated system enclosure protects the user against mechanical hazards and potentially harmful solvents and/or vapors. The system cannot be operated when:

- the door is open, and/or
- the integral system ventilation fan is not working.

Labels

Labels used on the system:

CE	In accordance with all the essential requirements of all applicable European product directives; see the Declaration of Conformity document supplied with the product.
TÜV SÜD C US	In accordance with both U.S. and Canadian safety standards; see the Declaration of Conformity document supplied with the product.
RoHS	In accordance with the Restriction of Hazardous Substances Directive; see "Restriction of Hazardous Substances (RoHS) Directive" on page 11 and the Declaration of Conformity document.
15	The product contains certain hazardous substances and can be used safely during its environmental protection use period (EPUP), as indicated by the number in the center, and should enter into the recycling system after the EPUP.
	Subject to the Waste Electrical and Electronic Equipment (WEEE) Directive; see "Restriction of Hazardous Substances (RoHS) Directive" on page 11.
	Manufacturer.
	Consult accompanying user documentation.
BIOHAZARD	The samples used with the system are potentially hazardous and can cause illness. Observe general as well as specific safety regulations for the use of the system and its accessories and consumables at all times, in order to reduce the risk of personal injury; see "Safety Requirements" on page 10.
	There is a risk of crushing when the system is in service mode. Note that all service must be performed by an authorized Biotage service engineer.

Explosion Risk

The system has open solvent reservoirs. If the ventilation fails and solvent vapors are not removed, an explosive environment could be generated. If the system is found with the door closed and the power off, you must:

1. Ventilate the system properly by opening the door manually using the T25 Torx screwdriver supplied with the system; see Figure 15 below. Ensure to take the necessary precautions to avoid exposure to potentially harmful solvents and/or vapors.
2. Remove all solvent reservoirs and remove any spillage before turning the system back on.

We do not recommend that the system is left unattended for an extended period of time when using flammable solvents.

Figure 15. Open the door manually by turning the screw counterclockwise.

Safety Requirements

You must observe all safety requirements when installing and operating the system. Failure to install or use the system in a manner specified by Biotage may result in personal injury and/or equipment damage. If the system has been damaged or does not function properly, shut it down, remove any solvents, samples, and waste inside the system, and contact Biotage 1-Point Support immediately (www.biotage.com).

Installation

- The system must be unpacked and installed by an authorized Biotage service engineer. Prepare the installation site as described on page 1.
- Follow regional safety practices when handling and moving shipping boxes and containers, and moving the system.
- The total weight of the package including the system is 125 kg (276 lbs). Use suitable lifting equipment when moving the package.
- The system weighs 80 kg (176 lbs). The four lifting handles supplied with the system must be used when moving the system. Four persons are required when lifting the system.
- Do not place any equipment or bottles on top of the system.
- The system must be electrically grounded (earthed). Use only a power cord supplied by Biotage. The ground prong on the cord plug must not be removed and the plug should only be connected to a grounded outlet as per local and national regulations. Keep the mains plug easily accessible in case the system needs to be disconnected quickly from mains power.
- Ensure that the power cord and any cables, hoses, and tubing connected to the system cannot come in contact with chemicals. Corrosives and solvents can degrade the cord/cable insulation and dissolve the hoses and tubing. There is a risk of electric shock, fire, and/or equipment damage.
- The system must be either connected to a ventilation system or placed in a well-ventilated fume hood or an equivalent enclosure to reduce the risk of exposure to harmful gases. The ventilation system or fume hood must be capable of exhausting 6 cubic meters/min (212 cubic feet/min).
- When installing the system inside a fume hood, follow local and national safety regulations for installing a system inside a fume hood and the safety regulations supplied by the fume hood manufacturer.
- When the system is connected to a ventilation system, an air duct adapter from Biotage must be mounted between the outlet of the Extrahera top ventilation and the ventilation tube. Ensure that the ventilation tube cannot be blocked.
- If using a vacuum pump, ensure that the fumes are directed into a proper ventilation system.

Operation

- Use the system only for its intended purpose, as described in the user documentation delivered with the system and user documentation available at www.biotage.com.
- To avoid leakage, check the following before operating the system:
  - Ensure that all connections are properly connected and tightened (see the "Connections" section on page 6).
  - Ensure that the extraction waste collector, waste reservoir, and solvent rack with five reservoirs (in position **5** on the working area) are in place, and that the waste reservoir and the pipette tip waste bin are not full.
  - Ensure that pipette tips of the correct size have been loaded into the correct positions in the pipette tip racks.
  - Ensure that there is no DFE plate in a carousel position that is used for waste.

- To avoid damaging the system, use care to ensure that all solvents used with the system are free of particulates.
- Never operate the system when damaged.

Chemical and Biological Safety

- Check regularly for leaks and spills. If leakage is observed, follow the instructions in the "Troubleshooting" section in the "Biotage® Extrahera™ LV-200 User Manual". If spillage has occurred, follow the instructions for cleaning the interior of the system in the "Biotage® Extrahera™ LV-200 User Manual".
- Always place the solvent bottles and waste reservoir on the side of the system.
- Use appropriate caps on the solvent bottles to prevent harmful solvent vapors from escaping and the contents from being spilled.
- The system operates using electricity, which can introduce additional hazards with certain solvents if not properly connected, vented, or set up with recommended manufacturer approved settings.
- Never leave solvents, samples, or waste inside the system when the ventilation is turned off.
- Follow all generally-accepted lab safety procedures and applicable laws and regulations.
- All samples and waste should be treated as potentially biohazardous.
- Always follow local and national safety regulations related to storage, handling and disposal of chemicals, biological samples and waste.
- Read and understand the safety data sheet (SDS) provided by the chemical manufacturer before storing, handling, working with, or disposing of any chemical or hazardous substance.
- Personnel working with or near the system must wear protective clothing, safety gear, and eye protection that comply with local and national safety regulations.

Maintenance and Troubleshooting

- If the system is found with the door closed and the power off, ensure to ventilate the system properly before turning the system back on. Follow the instructions in the "Explosion Risk" section on page 10.
- If the fan stops working, shut down the system, remove any solvents, samples, and waste inside the system, and contact Biotage 1-Point Support.
- If the ventilation is too low, potentially harmful gases will escape into the surrounding environment. Ensure to take the necessary precautions to avoid exposure to harmful gases.
- Follow all maintenance instructions in the "Maintenance" chapter of the "Biotage® Extrahera™ LV-200 User Manual".
- Clean the waste tubing regularly to avoid leakage caused by the tubing getting clogged. See instructions in the "Biotage® Extrahera™ LV-200 User Manual".
- There are no user serviceable parts inside the system. Covers and safety shields may only be removed by an authorized Biotage service engineer. Potential electrical hazard exists due to high voltage circuits inside the system.
- The power cord should be inspected periodically and replaced if damaged or altered. Use only a power cord supplied by Biotage.
- The system uses double pole fusing. Use only exact replacement fuses supplied by Biotage. Incorrect fuses create a potential fire hazard.
- Use only tubing, nuts, and ferrules supplied by Biotage.
- Use caution when finger-tightening fittings to prevent stripped threads or crushed ferrules.

Restriction of Hazardous Substances (RoHS) Directive

The RoHS directive is a European Union-derived initiative in which the elimination of certain hazardous substances is the key objective. The elimination of these substances will contribute to the protection of human health and the environmentally sound recovery and disposal of equipment.

WEEE Compliance Statement

Valid for customers in EU countries

We are committed to being a good corporate citizen. As part of that commitment, we strive to maintain an environmentally conscious manufacturing operation. The European Union (EU) has enacted a directive on product recycling (Waste Electrical and Electronic Equipment, WEEE).

Products falling under the scope of the WEEE Directive are identified with a crossed-out wheelie bin symbol on the product label, as indicated to the left. To forward a product for recycling or proper disposal, return them to Biotage Sweden AB. Before forwarding a product for recycling or disposal, it should be emptied of all liquid and cleaned from harmful residues. When returning a product to Biotage, this should be done in accordance with the material return procedures supplied separately by Biotage.

Safety in Other Languages

Translated versions of the safety chapter can be downloaded at www.biotage.com. If you have problems downloading the safety translations (P/N 417409), please contact your local Biotage representative. See contact information on the back of this document or visit our website www.biotage.com.

General Information

Consumables and Accessories

Only genuine Biotage accessories must be used in the system. To order consumables and accessories, see contact information on the back of this document or visit our website www.biotage.com.

Manufacturer

Biotage GB Limited United Kingdom for
Biotage Sweden AB

Contact Us

Biotage Sweden AB
Box 8
SE-751 03 Uppsala
SWEDEN

Visiting address: Vimpelgatan 5

Phone: +46 18 56 59 00
Fax: +46 18 59 19 22
E-mail: info@biotage.com
Website: www.biotage.com

Please contact your local Biotage representative. See contact information on the back of this document or visit our website www.biotage.com.

Your Complete Partner for Effective Chemistry

Biotage is a worldwide supplier of instruments and accessories designed to facilitate the work of scientists in life sciences. With our deep knowledge of the industry, academic contacts and in-house R&D teams, we can deliver the best solutions to your challenges. We take great pride in our flexibility and ability to meet our customer's individual needs. With strong foundations in analytical, organic, process, and biomolecule chemistry, we can offer the widest range of solutions available on the market.

EUROPE
Main Office: +46 18 565900
Toll Free: +800 18 565710
Fax: +46 18 591922
Order Tel: +46 18 565710
Order Fax: +46 18 565705
order@biotage.com
Support Tel: +46 18 56 59 11
Support Fax: + 46 18 56 57 11
eu-1-pointsupport@biotage.com

NORTH & LATIN AMERICA
Main Office: +1 704 654 4900
Toll Free: +1 800 446 4752
Fax: +1 704 654 4917
Order Tel: +1 704 654 4900
Order Fax: +1 434 296 8217
ordermailbox@biotage.com
Support Tel: +1 800 446 4752
Outside US: +1 704 654 4900
us-1-pointsupport@biotage.com

JAPAN
Tel: +81 3 5627 3123
Fax: +81 3 5627 3121
jp_order@biotage.com
jp-1-pointsupport@biotage.com

CHINA
Tel: +86 21 68162810
Fax: +86 21 68162829
cn_order@biotage.com
cn-1-pointsupport@biotage.com

KOREA
Tel: + 82 31 706 8500
Fax:+ 82 31 706 8510
korea_info@biotage.com
kr-1-pointsupport@biotage.com

INDIA
Tel: +91 11 45653772
india@biotage.com

Distributors in other regions are listed on www.biotage.com

Part Number: 417408-A

Biotage®