

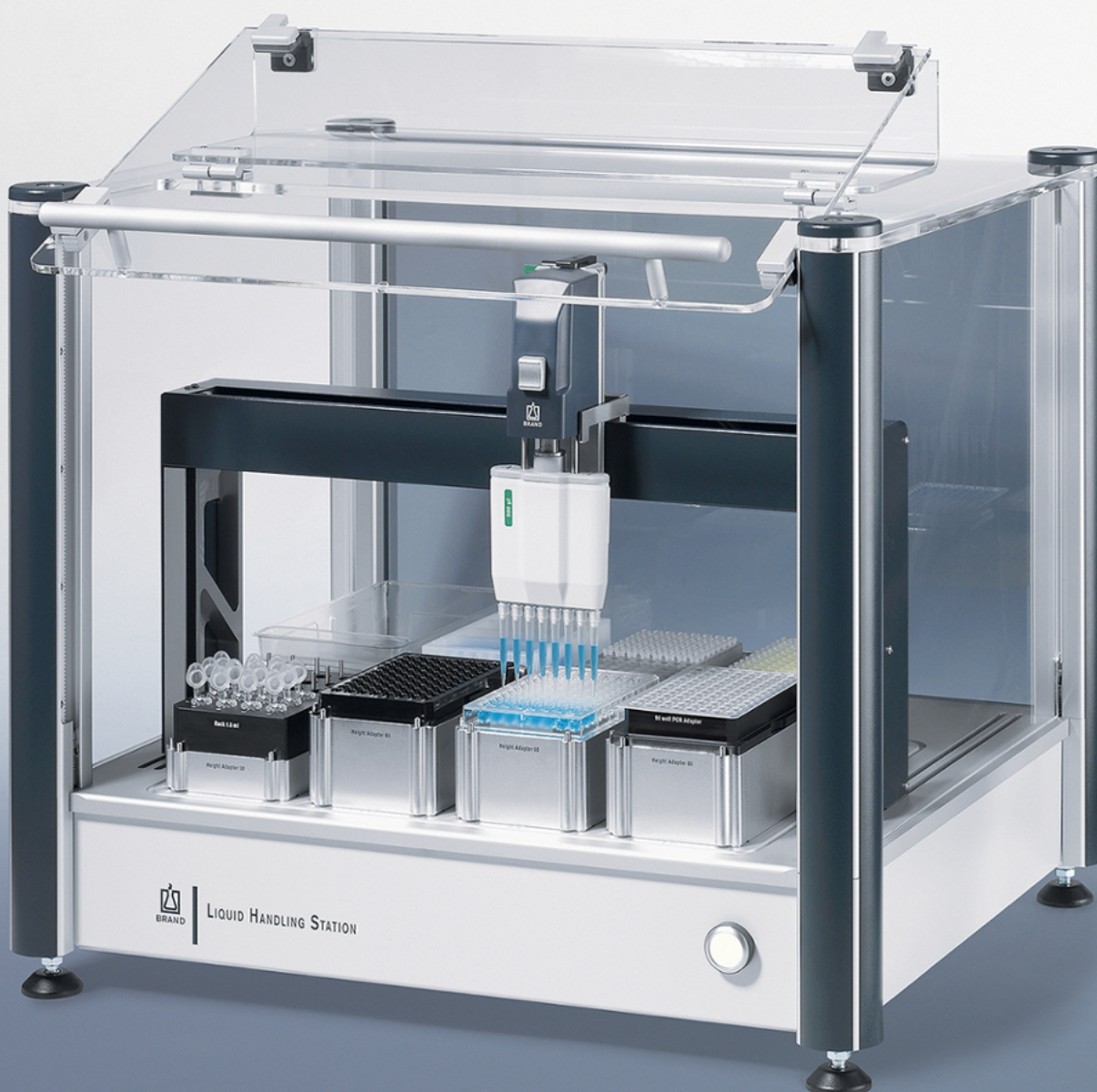
Simple, intuitive and compact.



Liquid Handling Station

Operators manual

FIRST CLASS · BRAND



EG-Konformitätserklärung EC-Conformity Declaration

Das bezeichnete Gerät entspricht den einschlägigen Anforderungen der aufgeführten EG-Richtlinien und Normen. Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller. Bei einer nicht mit uns abgestimmten Änderung des Gerätes verliert die Erklärung ihre Gültigkeit.

The device named below fulfills the relevant fundamental requirements of the EC directives and standards listed. This declaration of conformity is issued under the sole responsibility of the manufacturer. In case of unauthorized modifications to the device, the declaration becomes invalid.

Gerätebezeichnung / Device name: Liquid Handling Station inkl. Liquid Ends
Liquid Handling Station incl. Liquid Ends

Gerätetyp / Device type: Pipettiersystem
Pipette system

Hersteller / Manufacturer: BRAND GMBH + CO KG

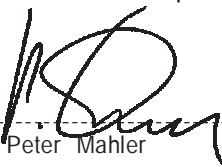
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97877 Wertheim · Germany


Der oben beschriebene Gegenstand der Erklärung erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union: The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:		Harmonisierte Normen: Harmonized standards:
RoHS II	2011/65/EU: 2011/06	EN 50581: 2012

Weitere berücksichtigte Richtlinien: Other considered directives:		Harmonisierte Normen: Harmonized standards:
EMV EMC	2014/30/EU: 2014/02	EN 61326-1:2013; FCC 47 CFR Part 15B; ICES-003
Niederspannung LVD	2014/35/EU: 2014/02	EN 60320-1:2001+A1:2007 IEC 61010-1:2010 (3 rd Ed.), IEC 61010-2-081:2015 (2 nd Ed.)
Volumen // Volume	-	EN ISO 8655 -1/ -2 / -6

Wertheim, 01. September 2016 / September 01, 2016

11.01.01.02


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Diese Erklärung bescheinigt die Übereinstimmung mit den genannten Harmonisierungsvorschriften,
beinhaltet jedoch keine Zusicherung von Eigenschaften.

This document declares the accordance with the named harmonized regulations, but does NOT assure specific properties.

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1 User Instructions

1.1 Using this manual

It is essential to read and follow this operating manual to work safely and correctly with the Liquid Handling Station.



Important!

Read this operating manual carefully before using the Liquid Handling Station and keep it in a location easily accessible to all users for later reference.

Use the Liquid Handling Station only for the intended use described in this manual.

In case of doubt, contact the manufacturer of this product.

1.2 Information about this document

Manufacturer	BRAND GMBH + CO KG Otto-Schott Strasse 25 97877 Wertheim Germany Tel.: +49 9342 808-0 Fax: +49 9342 808-98000 E-mail: info-ALH@brand.de Internet: www.brand.de
Service	BRAND GMBH + CO KG Otto-Schott Strasse 25 97877 Wertheim Germany Tel.: +49 9342 808-1990 Fax: +49 9342 808-91290 E-mail: support-ALH@brand.de

Document	Manufacturer's original operating manual
Last updated:	06. September 2016

The latest version of the operating manual can be requested from the manufacturer in either PDF or HTML format.

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1.3 Symbols

Safety instructions

The following symbols indicate safety instructions and their level of danger. Read the safety instructions carefully and follow them in order to prevent danger.

**DANGER!**

Danger with high level of risk.
Indicates that there may be a danger to life.

**ELECTRIC CURRENT!**

Danger with high level of risk.
Indicates that there may be a danger to life from electrocution.

**DANGER!**

Danger with high level of risk.
Indicates that there may be a danger to life from explosion.

**BIOHAZARD!**

Danger with high level of risk.
Indicates that there may be a danger from hazardous and infectious substances.

**Warning!**

Danger with moderate level of risk.
Indicates that there may be a danger of injury.

**Caution!**

Danger with low level of risk.
Indicates that property damage (to the instrument, accessories, etc.) may occur.

Further labeling and symbols

Work steps that follow one another are numbered (1., 2., 3., etc.).

Individual actions that are independent of one another are shown with ●.

Lists with no particular order are shown with o.

Buttons are shown in square brackets, such as [OK].

Terms that you can see on the current screen of the software are shown in *italics*.

***Tips and recommendations***

Highlights useful tips and recommendations as well as information for efficient operation.

***Help***

Symbol for the context-sensitive help function in the Liquid Handling Station operating software.

1.4 Glossary

A

Adapters

Adapters are used to compensate for height differences between the positions equipped with different types of labware. This achieves shorter distances and faster execution of the method. There can be height adapters, tip adapters, microtube, or PCR racks. An overview of all the adapters available can be found in the section "Ordering data" under "Accessories".

C

Command

Indicates a single sequence step in the program sequence of a method. In the operating software, there are four different commands available: Transfer, Wait, Mix, and Break commands.

D

Destination

Labware or destination container into which the liquid is transferred from another container (the source).

Destination well

Individual well in a labware that has been defined as the destination.

F

Filling volume

Maximum volume available in a labware or an individual well for filling with liquid.

G

Graphical view

Area in the software that graphically represents the Work Table (with selected labware, filling, etc.).

L

Labware

Collective term for microplates, PCR plates, deep-well plates, inserts, tube racks, tubes, tips and the waste box that can all be used with the Liquid Handling Station.

Liquid End

Single- or 8-channel pipetting module that is connected to the motor control unit to carry out liquid transfers with the Liquid Handling Station.

M

Method

Sequence consisting of naming the file, equipping of the Work Table, definition of the command and execution of the method. A more detailed explanation of the term "Method" can be found in the chapter "Structure of methods".

Minimum immersion depth

Distance from the lower end of the tip to the surface of the liquid. This distance ensures correct aspiration of liquid and avoids problems such as the accidental aspiration of air.

Minimum bottom distance

Denotes the smallest permitted distance between the labware bottom and the lower end of the tip that will be approached when moving into the labware. This distance is used to avoid crashes and ensure the correct aspiration of liquids.

P**Pipetting step**

Aspiration of a predefined volume from a source well and dispense of that volume (entirely or in partial steps) in a destination well.

Position

Individual recess on the Work Table onto which the labware can be positioned. The Work Table of the Liquid Handling Station has eight positions. Seven of them can be equipped freely, but one position is predefined for the waste box.

R**Remaining Volume**

Volume that must remain in the labware to permit defined, reliable liquid aspiration. The remaining volume is reliant on the minimum immersion depth and the minimum bottom distance.

S**Settings**

Configurations for the labware on the individual positions, as well as the individual commands.

Source

Labware from which liquid is taken to transfer it into another labware (the destination).

Source Well

Individual well in a piece of labware defined as the source.

T

Tab Denotes individual tabs on a menu tab. Example: Method tab on the main menu.

Transfer

A single transfer includes all the pipetting steps carried out between one or more sources and one or more destinations in a Transfer command.

Transfer volume

The volume of liquid transferred from the source into the destination, or into the individual wells of the destination.

V**(Distribution) Pattern**

Specification of the position of aspiration in a source (source wells) and the position of dispensing of a destination (destination wells).

W**Well Content**

General: Contents of one or more wells.

In the operating software: Settings such as liquid volume, name, liquid type that apply to the contents of a fillable labware.

Work Table

Workspace of the Liquid Handling Station, whose eight positions can be virtually equipped using the software. After definition of the commands, the physical loading of the Work Table then takes place.

Z**Z-tracking**

Downward movement during liquid aspiration and upward movement while dispensing. The starting point of aspirating and dispensing can be set user-defined.

1.5 Liability

All specifications and instructions in this manual were compiled in consideration of the applicable standards and regulations, the state of the art, and the many years of experience of the manufacturer.

The manufacturer of this product cannot accept any liability for damages resulting from:

- Failure to follow this operating manual
- Use of the instrument for anything but its intended use
- Use by untrained personnel
- Unauthorized modification of the instrument
- Unauthorized repair of the instrument
- The use of third-party or unapproved spare parts
- Normal wear, in particular of wearing parts such as pistons, seals, valves, etc.

The warranty terms for damages that can occur despite proper use can be found in the manufacturer's General Terms of Business.

Subject to technical changes, error, and printing errors.

2 Safety

2.1 Intended use

The BRAND Liquid Handling Station is an automated pipetting system for use in routine laboratories with small to medium sample throughput in research, development, or production particularly in such application fields as PCR, qPCR, ELISA, enzyme assays, etc.

Typically, aqueous media such as buffer solutions (phosphate buffer, Tris-HCL buffer, etc.), protein solutions (BSA solutions, enzyme solutions, PCR master mix) and samples are pipetted. The instrument is used for the automatic, precision transfer of liquids. For the liquid transfer, there are autoclavable single-channel and 8-channel pipette modules (Liquid Ends) available, which are replaced manually. 7 SLAS-formatted working positions (P2-P8) can be loaded onto the Work Table and freely assigned. One additional predefined position (P1) must be occupied by the waste container.

Limits and restrictions for use

- Operating temperature: + 15 °C to + 35 °C (instrument and reagents)
- Vapor pressure: up to 500 mbar
- Viscosity: 260 mPa s

Viscous and highly adhesive liquids may impair volumetric accuracy. Volumetric accuracy may also be impaired when pipetting liquids that differ from ambient temperature by more than +/- 5 °C.



Caution! **Risk of corrosion**

- Do not use the instrument with liquids that attack polypropylene, PMMA (side and front panels), POM or aluminum (labware adapters).
- Avoid aggressive vapors.
- Avoid strong acids and bases.
- Protect the instrument from penetration by liquids. Do not place containers of liquid on, in, or next to the instrument.

This instrument can be used in combination with hazardous materials, operations and equipment. However, the Operating Manual cannot identify all of the safety risks that can occur from working with the instrument. It is the user's responsibility to comply with the relevant safety and health regulations and to determine the applicability prior to use.

In case of doubt, contact the manufacturer!

The safety instructions listed in the next chapter must always be followed. If damages should occur due to use other than the intended use, no claims of any kind can be accepted.

2.2 Safety instructions

1. Danger due to electrical current



DANGER!
Danger to life from electrical voltage

Life-threatening electrical voltages exist within the instrument.

Contact with live components may result in a danger to life by electrocution.

- Commissioning may only take place if the instrument has been properly installed or repaired.
- Immediately disconnect the device from the mains voltage in the event of any danger: pull the plug or disconnect the cables.
- Always be sure that the housing and covers are intact and closed.
- Only connect the instrument to properly grounded power outlets.
- Before connecting, check that the supply voltage matches the permitted operating voltage. An incorrect supply voltage can cause major damage to the instrument.
- Before turning on, be sure that the power cable and connections are undamaged.
- The covers of the instrument must only be removed by technicians authorized by the manufacturer to do so. Turn off the instrument and pull the power plug before disassembly.
- Keep moisture away from live components to avoid short circuits.

2. Personnel requirements



WARNING!
Qualification of personnel

Unqualified personnel are prohibited from working with the instrument.

- The instrument may only be operated by experts, i.e. users who have been trained by the manufacturer or specialized suppliers.
- To avoid injuries and property damage, keep unauthorized personnel away from the work area of the instrument.
- Each user must read and understand the contents of the operating manual before using the instrument.



Caution!
Repair and service

Repair and service may only be carried out by trained technical personnel.

- Repairs to and service work on the instrument may only be carried out by experts, i.e. technicians who are authorized by the manufacturer to do so.
- Only original spare parts should be used.
- Do not make any technical modifications to the instrument.

3. Danger due to failure to observe the intended use, or improper handling



WARNING!

Follow the limitations on use

Do not use the instrument for anything but its intended use.

- The instrument must only be used for its intended purpose. Explosive and flammable substances must not be used
- The manufacturer cannot assume any liability for any consequential damage, including personal injury, loss of productivity of samples, and/or property damage that results from failure to observe the intended use.
- When in doubt, contact the manufacturer.



WARNING!

Improper handling

Handle the instrument according to the safety instructions and the operating manual.

- Do not use excessive force.
- Improper handling (short circuit, mechanical damage, overheating, etc.) may lead to fire or explosion of the instrument.
- No liability can be assumed for damages due to improper handling.

4. Locally applicable safety instructions



WARNING!

Compliance with locally applicable regulations

In addition to the safety regulations for the use of the instrument, locally applicable regulations must also be observed.

- This particularly applies to workplace safety and accident prevention (e.g. safety clothing, safety gloves, and eye protection) as well as hygiene regulations.
- Your own laboratory's safety guidelines for handling any potentially hazardous substances.

5. Danger due to hazardous substances



DANGER!

Use of hazardous substances or infectious liquids

When handling infectious, aqueous fluids, national regulations and biosafety level of laboratories should be observed.

The Liquid Handling Station is suitable for dealing with germs and biological material of risk class I. The most current requirements stated in the "Laboratory Biosafety Manual" (World Health Organization) apply when dealing with germs of higher risk groups.

The operator bears all responsibility for selecting the substances used and for their safe handling.

- This applies particularly to radioactive, infectious, poisonous, aggressive, flammable, or otherwise dangerous substances.
- When working with infectious or hazardous samples, standard laboratory procedures and precautions must be followed.
- Observe the material safety data sheets (MSDS) and the manufacturer's application notes.
- Dispose of the contents of the waste container in accordance with applicable regulations. Particular caution is recommended when using inflammable, reactive, or infectious liquids.
- If the instrument has been contaminated with hazardous substances, it must be cleaned and decontaminated.

The unit itself will not emit any potentially toxic or harmful gases or substances.

6. Danger of explosion



DANGER!

Danger of explosion

In case of contact with explosive substances, there is a danger of explosion.

- The instrument should not be operated in a potentially explosive atmosphere.
- Do not use explosive or highly reactive substances with the instrument.
- Do not store explosive substances near the instrument.
- Do not use any flammable liquids, especially carbon disulfide.

7. Danger of crushing



Caution!

Crushing danger - Watch your fingers and hands!

Only reach into the work area when the machinery is at a standstill!

- If the front panel is opened while a program is in progress, the running process will be interrupted after the current work step has finished.
 - Wait until the machinery has stopped before reaching into the work area!
-

8. Visual inspection before starting work



Caution!

Inspection before starting work

Before starting work, inspect the instrument to verify that it is in proper condition.

- If damage can be observed that would endanger safe operation, do not work with the instrument, until appropriate repairs are performed.
 - If the instrument is contaminated with liquids or dirt, clean it up before starting work.
-

9. Malfunctions



Caution!

Handling malfunctions

If malfunctions occur during the work process, correct them immediately.

- Follow the instructions on the screen.
- If the program does not display error messages and instructions, stop the procedure by actuating the on/off switch. When in doubt, contact the manufacturer.
- An "emergency stop" can be carried out by pulling the power plug. Please note that in this case data may be lost.

2.3 Transport and storage



WARNING!

Risk of injury or property damage during transport

- Always have at least two people to lift and carry the instrument.
- When carrying the instrument, only grip it under the sides.
- Only transport the instrument in a vertical orientation and do not tip it.

Before transport, remove all loose parts (adapters, containers, labware, etc.).

Do not leave hazardous substances in the instrument. If necessary, clean and decontaminate the instrument before transport.

Environmental conditions for transport and storage:

- Temperature range: - 20 °C to + 65 °C
- Humidity: max. 95 %

For optimum protection, the instrument must be transported in special packaging. To retain that protection during storage as well, only remove the packaging shortly before installation.

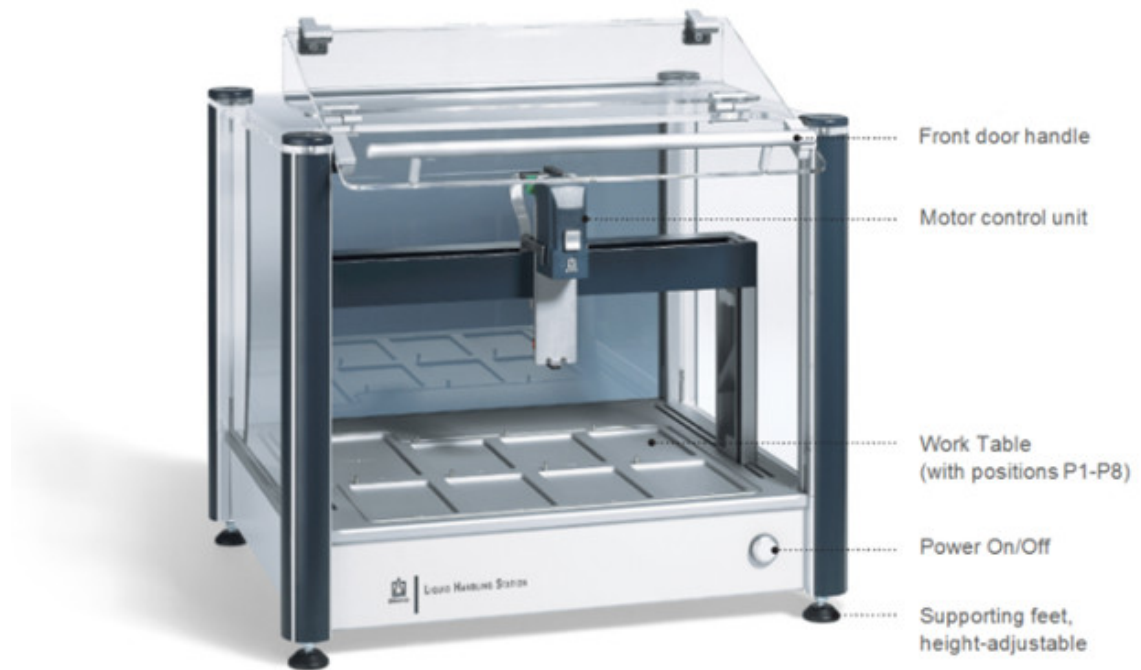


Always use the original packaging for transportation! Please do not damage the packaging or dispose of packaging. Unpack and repack machinery in accordance with the included instructions!

3 Liquid Handling Station

3.1 Overview

Front side



Back side



3.2 Included in delivery

Delivery includes the following:

- BRAND Liquid Handling Station
- Motor control unit
- Operating software
- Operating manual
- Power cable
- USB cable
- Documentation and on-site training

3.3 Technical data

Specifications

Liquid Ends	Single-channel Liquid Ends (SC), 8-channel Liquid Ends (MC8)
Volume ranges	Single-channel Liquid Ends: 1 - 50 µl, 10 - 200 µl, 40 - 1000 µl 8-channel Liquid Ends: 1 - 50 µl, 20 - 300 µl
Working positions	8 working positions: P2 - P8, P1 for waste container
Weight	25 kg
Dimensions (closed)	H 530 x W 595 x D 485 mm
Operating temperature	+ 15 °C to + 35 °C
Transport temperature	- 20 °C to + 65 °C
Supply voltage	100 - 240 V, 50 - 60 Hz
Fuse	2 x T 2.5A H 250V
Interfaces	1 x USB
Power consumption	maximum 150 W
Protection class	Protection class I
Housing	Protection class IP20
Safety standards	IEC 61 010-1
EMC compatibility	Radio interference and interference resistance compliant with DIN EN 61 326-1
Noise level	46 dB

Accuracy tolerances for the Liquid Ends

Liquid End	Volume range μl	Volume step μl	$A \leq \pm\%$	$CV \leq \%$
Single-channel	1 - 50	50	1.5	0.5
		25	2.0	0.8
		5	6.0	3.0
	10 - 200	200	1.0	0.3
		100	1.5	0.4
		20	4.0	1.5
	40 - 1000	1000	1.0	0.2
		500	1.5	0.3
		100	3.0	1.0
8-channel	1 - 50	50	1.5	0.6
		25	2.0	1.0
		5	8.0	4.0
	20 - 300	300	1.2	0.4
		150	1.6	0.6
		30	5.0	2.5

* Final test values related to the nominal capacity (maximum volume) indicated on the Liquid End and the indicated volume steps, obtained when Liquid End and distilled water are equilibrated at ambient temperature (20 °C / 68 °F) and with smooth operation. According to DIN EN ISO 8655.

A = Accuracy, CV = Coefficient of Variation

4 Start-up

4.1 Setting up



DANGER!
Danger of explosion

Never operate the instrument in a potentially explosive environment.

The surface where the instrument is set up must be even and have a minimum load capacity of 25 kg.



Use a level to check that the instrument is horizontal.

A minimum setup area of 700 mm high x 800 mm wide x 600 mm deep is recommended. These dimensions guarantee a distance of 100 mm between all sides of the instrument and the wall, permitting unhindered air circulation and protecting the instrument from overheating. They also include 160 mm of space above the instrument, which will be needed to open the front door.

Select a location that meets the operating conditions:

- + 15 °C to + 35°C
- max. 95% relative humidity at 30 °C

Also provide space for a monitor and PC, or for a laptop.



Keep changes in temperature and humidity to a minimum when setting up and transporting the machinery. Condensation can cause malfunctions or defects in the Liquid Handling Station or the computer connected to it.

Before beginning initial operations, the Liquid Handling Station and the computer must first adjust the surrounding temperature. This may take several hours in some circumstances.



Caution!
Risk of property damage

To avoid property damage, protect the instrument from:

- Dust and drafts.
- Shock and vibration.
- Electromagnetic fields (such as motors).
- Aggressive vapors (such as corrosive media).
- Water droplets and spray. Do not place containers of liquid on or immediately next to the instrument.
- Direct sunshine or radiation from heating surfaces.

Also ensure that air can circulate freely around the instrument.

4.2 Connection



DANGER!

Danger to life due to electrical current

Contact with live components may result in a danger to life by electrocution.

- Always be sure that the housing and covers are intact and closed.
- Only connect the instrument to properly grounded power outlets.
- Before connecting, check that the supply voltage matches the permitted operating voltage. An incorrect supply voltage can lead to the destruction of the instrument.
- Before turning on, be sure that the power cable and connections are intact.
- The instrument may only be opened by technicians authorized by the manufacturer to do so. Before opening or removing covers, turn off the instrument and pull the power plug.
- Keep moisture away from live components to avoid short circuits.

1. Connect the instrument to the PC through the COM interface.
2. Connect the instrument to power using the power cable included.
3. Turn the power switch on the back of the instrument on.



For the instrument to work correctly and to avoid danger to the user, it is necessary to have the manufacturer install the instrument and perform initial start-up. All users of the instrument must also be trained by the manufacturer or an authorized dealer before initial start-up.

Contact the manufacturer before decommissioning, transporting or disposing of the device.

4.3 Operation

1. Turn the instrument on using the on/off switch on the right front side of the instrument.
2. Start the software. A connection is established between the instrument and the PC.
3. Create a method or load an existing method. This procedure is described in detail in the operating manual for the Liquid Handling Station operating software.
4. Open the front hood and fill the Work Table with the labware needed for the method and selected in the software.



Caution!
Load the Work Table correctly

- Be sure that the labware is placed onto the Work Table as specified in the software or the method.
- To compensate for height differences, it is absolutely essential to use the adapters recommended by the software.
- Otherwise the Liquid End could strike the labware and incur damage.
- Use the height adapter only in the orientation provided. Do not use excessive force.

5. Close the front door and start the program.



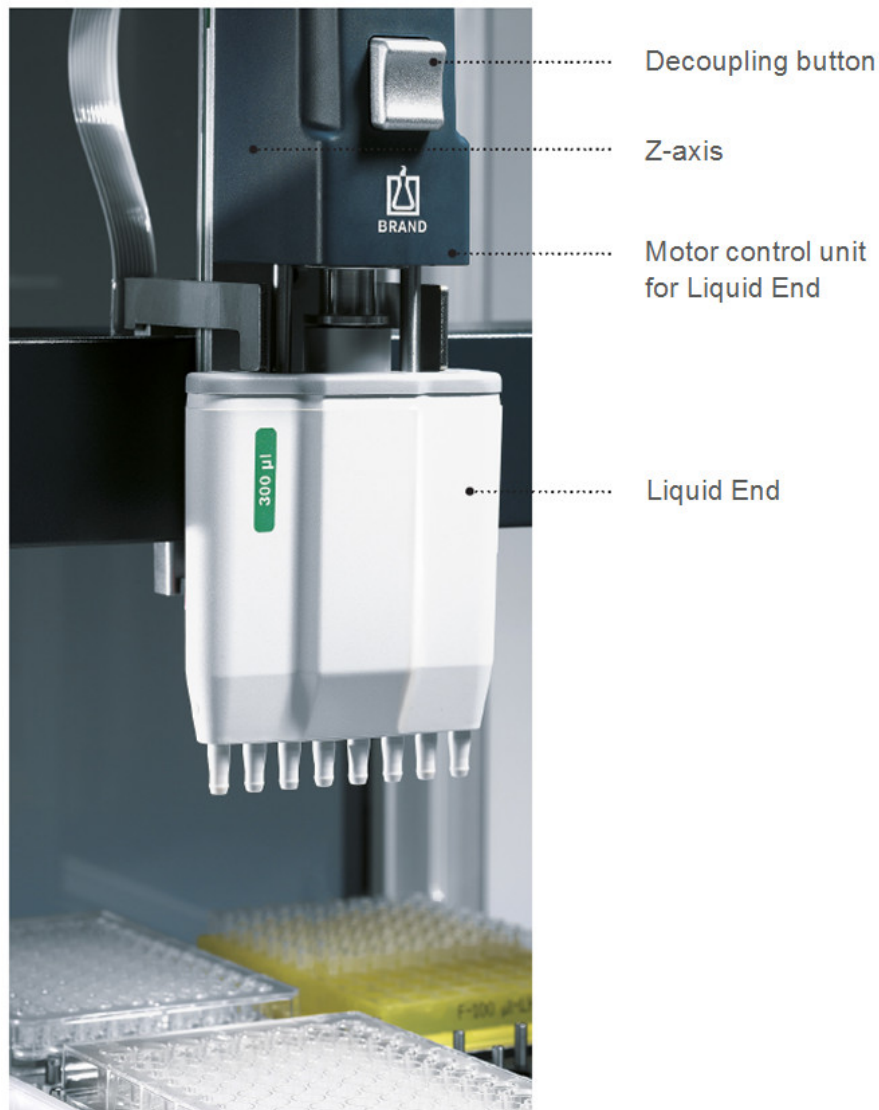
As delivered from the factory, the program can only be started with the front door closed. If the front door is opened while a program is running, the ongoing procedure is stopped after the current work step has completed. After the front door is closed again, the program restarts from the point of interruption.



Caution!
Danger of crushing

Only reach into the working area when the machinery is at a standstill!

5 Replacing the Liquid End



1. Grasp the Liquid End and press the decoupling button. The Liquid End is automatically released from the motor control unit. If the Liquid End is replaced while the Liquid Handling Station is turned off, it must be pulled downwards with the decoupling button pressed.
2. Insert the new Liquid End vertically into the motor control unit from below.
3. Push it upwards until it engages.



If different Liquid Ends are needed for the method to run, a message will appear on the screen prompting you to replace them as required.

6 Maintenance/Cleaning

6.1 Instrument

Spray, drips, or large amounts of spilled liquids must be wiped off immediately with an absorbent cloth.

Remove contamination (such as dirt, dust) with a soft, clean cloth.

If necessary, use a neutral detergent.

Liquid Ends can be autoclaved at 121 °C for 20 minutes.

Labware adapters are not autoclavable! They can be cleaned as needed with ethanol or disinfectant.

Decontamination

**Caution!**

Turn off the Liquid Handling Station and isolate it from the mains before cleaning, decontaminating or carrying out any maintenance work!

Wipe off the instrument and working surface with a lint-free cloth.

We recommend using 70 % (v/v) ethanol, 3 % - 4 % sodium hypochloride or an alcohol-based surface disinfectant, e.g. Pursept® -A Xpress disinfectant spray for disinfection or decontamination.

**Caution!**

Please be sure that during spraying

- the motor control unit does not come into contact with cleaning agents or other liquids
- and that no detergents can enter the guide slots.

Should any liquid get into the device, isolate the unit immediately from the mains and contact the BRAND service.

UV decontamination of the Liquid Ends and the adapters is possible.

If a procedure or detergent other than those listed here is used, please clarify with the manufacturer whether it will be harmless to the instrument.

**WARNING!****Cleaning in medical laboratories**

- Particular care is required when handling infectious material (see Safety instructions - 5. Danger due to hazardous substances).
- Please follow the corresponding safety regulations.

Sending the instrument in for service or repair

If the instrument has to be sent to the manufacturer, decontamination must first be carried out and documented. For safety reasons, only decontaminated instruments can be serviced and repaired.

Hereto complete the "Declaration on Absence of Health Hazards" and send the instrument to the manufacturer. Ask your manufacturer for the form or download it on www.brand.de.

Before sending, request the special packaging from the manufacturer and pack the Liquid Handling Station properly in order to prevent damage during transport.



Transporting hazardous materials without a permit is a violation of federal law.

6.2 Single-channel Liquid Ends

To ensure proper function, the Liquid Ends should be serviced on a regular basis and cleaned when needed.

Maintenance

1. Detach Liquid End: Press the decoupling button with one hand while simultaneously removing the Liquid End with the other hand.
2. Check the tip cone (lowest part of the pipette shaft (S)) for damage.
3. Inspect the piston on the lower end of the complete piston unit (A) and the piston seal (C) for damage and contamination. To do this, the Liquid End must be dismantled (see below). Replace the piston if necessary.
4. Test the Liquid Ends for leaks.



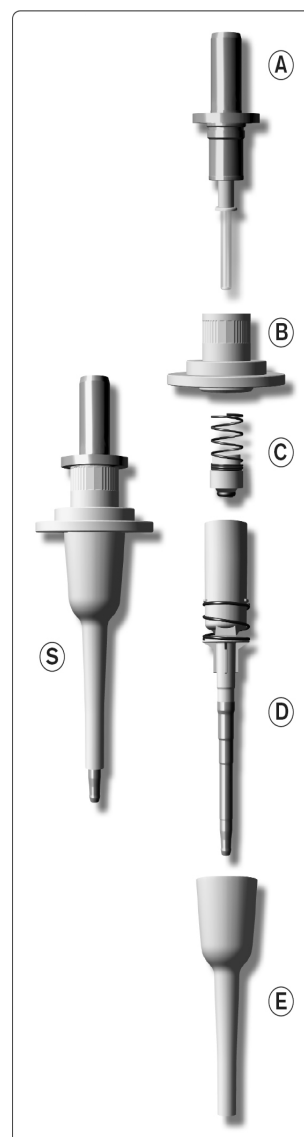
For testing, we recommend the BRAND PLT unit. If the Liquid End is leaking, please contact the manufacturer's support department!

Dismantling and cleaning

1. Uncouple the Liquid End from the motor control unit.
2. Unscrew retaining sleeve (A). The piston unit remains connected to the retaining sleeve.
3. Remove seal with spring (C).
4. Unscrew the upper ejector part (B) from the pipette shaft.
5. Pull shaft (D) out of the lower ejector part (E).
6. Clean the parts shown with a mild soap solution or isopropanol. Then rinse with distilled water.
7. Allow parts to dry at max. 120 °C.
8. Lubricate piston with a very thin layer of the silicone oil supplied.
9. Assemble the ambient temperature parts in reverse order. Retaining sleeve (A) and upper part of the ejector (B) should only be hand-tight.



All individual components shown in the illustration can be purchased as replacement parts. Use only original spare parts!



6.3 8-channel Liquid Ends

To ensure proper function, the Liquid Ends should be serviced on a regular basis and cleaned when needed.

Maintenance

1. Detach Liquid End.
2. Check nose cones, pistons and seals for damage and contamination.
3. Test the Liquid Ends for leaks.



For testing, we recommend the BRAND PLT unit. Use only original spare parts!

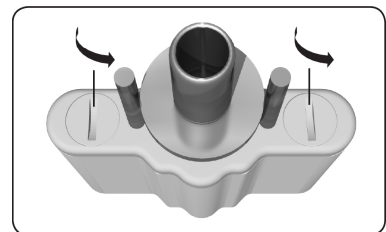
Dismantling and cleaning

Cleaning instructions

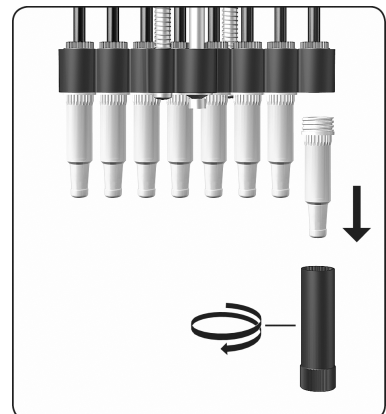
1. Clean single nose cones, piston and nose cone support bar (**these components only**) with a mild soap solution or isopropanol. Then rinse with distilled water.
2. Allow parts to dry at max. 120 °C and cool down completely. Residual moisture in the nose cones may result in a loss of accuracy.
3. Lubricate pistons with a very thin coating of the silicone grease supplied. For the central guide rod only use the recommended flourstatic grease!

Removing nose cones and seals for cleaning and replacement

1. **Detach Liquid End**
2. **Pull the housing of the Liquid End off**
To do this, turn both closures of the housing cover 90° (e.g., using a coin) and pull off the housing.

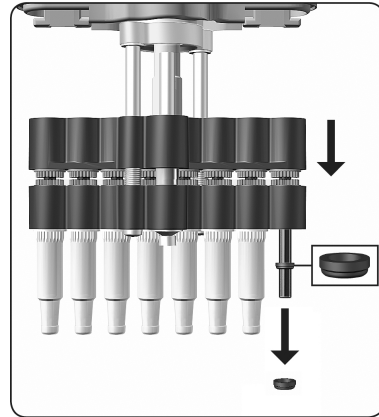


3. **Unscrew the shaft**
 - 3.1 Slide the mounting tool onto the nose cone.
 - 3.2 Unscrew the nose cone.



4. Remove the seal

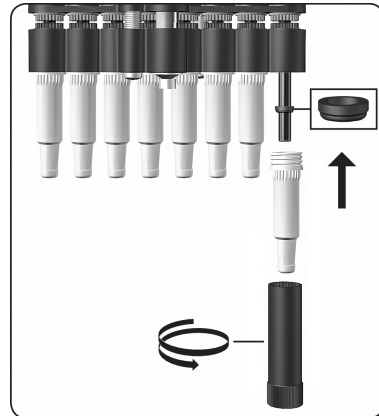
- 4.1 Push the piston unit down to the bottom.
- 4.2 Remove the seal, inspect it and clean, or replace it if necessary.



After the nose cone is removed, the seal may either stay on the piston or remain inside the nose cone.

5. Mount the seal

- 5.1 If required, lubricate the piston with a very thin coating of the supplied silicone.
- 5.2 Push the seal onto the piston with its flat side facing upwards.
- 5.3 Use the mounting tool provided to tighten the cleaned or new nose cones.



6. Connect the Liquid End

- 6.1 Reassemble the Liquid End, attach the lower ejector part, and check for leaks. For testing, we recommend the BRAND PLT unit.
- 6.2 After checking for leaks, connect the Liquid End back to the motor control unit.
- 6.3 If the Liquid End is leaking, please contact the manufacturer's service department.

7 Ordering Information

7.1 Liquid Handling Station and Accessories

BRAND Liquid Handling Station

including motor control unit, operating software, user manual, power cable, USB cable, documentation and on-site training.

Cat. No.7094 00

Single-channel Liquid End

Volume	Description	Cat. No.
1 - 50 µl	SC-50	7094 10
10 - 200 µl	SC-200	7094 13
40 - 1000 µl	SC-1000	7094 16

8-channel Liquid End

Volume	Description	Cat. No.
1 - 50 µl	MC-50	7094 20
20 - 300 µl	MC-300	7094 23

Liquid End holder

Suitable for single-channel and 8-channel Liquid Ends.
Pack of 1.

Description	Cat. No.
for 3 Liquid Ends	7094 63
for 5 Liquid Ends	7094 65

Labware adapter and racks

Pack of 1.

Description	Material	Cat. No.
Height adapter 60 mm	Aluminum	7094 30
Height adapter 30 mm	Aluminum	7094 32
Tip Adapter	Aluminum	7094 34
PCR Adapter 96-well	POM	7094 46
PCR Adapter 384-well	POM	7094 48
Microtube Rack 1.5 ml	POM	7094 50
Microtube Rack 0.5 ml	POM	7094 52
Microtube Rack 5 ml	POM	7094 53

PCR cooler 96-well

PP. Indirect cooling, suitable for 0.2 mL tubes, strips of 8 and 12 PCR tubes, as well as 96-well PCR plates. Changes from violet to pink at 7 °C.

Pack of 2.

Cat. No. 7094 56

Waste Box

includes reservoir for remaining liquids

Pack of 5.

Order no 7094 58

Reagent reservoirs

PP, autoclavable.

Pack of 10.

Volume	Bottom Style	Cat. No.
220 ml	pyramidal bottom, 96-well	7014 50
12 x 6 ml	pyramidal bottom, low profile	7014 52
4 x 60 ml	pyramidal bottom	7014 54
6 x 40 ml	pyramidal bottom	7014 56
50 mL	flat bottom, low profile	7014 58

Additional accessories for the BRAND Liquid Handling Station

Description	Cat. No.
Silicone oil , for pistons in single-channel Liquid Ends	7055 02
Silicone grease , for pistons in 8-channel Liquid Ends	7036 77
Fluorstatic grease , for central guide rod in 8-channel Liquid Ends	7036 78
PLT unit , pipette leak testing unit	7039 70

Liquid Handling Station robotic tips and robotic filter tips

Use the following compatibility table to find the right tip for your Liquid Ends:

Liquid Ends			Robotic tips				Robotic filter tips			
Cat. No.	Liquid End	Ref. in software	1-50 µl	10-200 µl	10-300 µl	40-1000 µl	1-20 µl	10-100 µl	10-200 µl	40-1000 µl
7094 10	1-channel 1-50 µl	SC-50 µl	X				X			
7094 13	1-channel 10 –200 µl	SC-200 µl		X	X			X	X	
7094 16	1-channel 40-1000 µl	SC-1000 µl				X				X
7094 20	8-channel 1–50 µL	MC8-50 µl	X				X			
7094 23	8-channel 20-300 µl	MC8-300 µl		X	X			X	X	

Robotic tips

Volume	Pack of	non-sterile Cat. No.	sterile Cat. No.
1 - 50 µl	10 TipRacks, 96 each	7321 46	7321 66
10 - 200 µl	10 TipRacks, 96 each	7321 48	7321 68
10 - 300 µl	10 TipRacks, 96 each	7321 50	7321 70
40 - 1000 µl	10 TipRacks, 96 each	7321 52	7321 72

Robotic filter tips

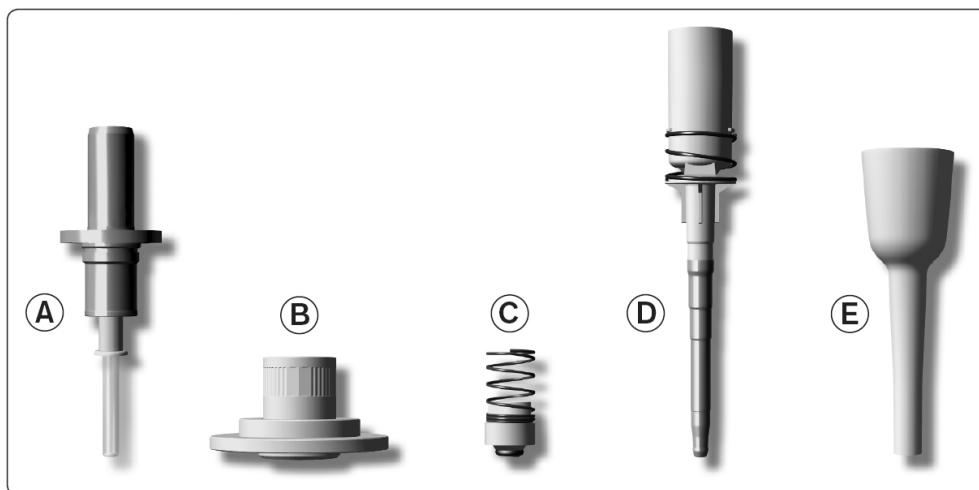
Volume	Pack of	non-sterile Cat. No.	sterile Cat. No.
1 - 20 µl	10 TipRacks, 96 each	7326 46	7326 66
10 - 100 µl	10 TipRacks, 96 each	7326 50	7326 70
10 - 200 µl	10 TipRacks, 96 each	7326 52	7326 72
40 - 1000 µl	10 TipRacks, 96 each	7326 54	7326 74

7.2 Spare parts

Spare parts for the single-channel Liquid End

Parts will differ slightly depending on nominal volume of Liquid End (Fig. shows spare parts for 50 µl Liquid End).

Pack of 1.



Volume	A	B*	C	D	E
1 - 50 µl	7096 02	-	7096 08	7096 12	7096 24
10 - 200 µl	7096 04	-	7055 32	7096 14	7096 26
40 - 1000 µl	7096 06	-	7055 34	7096 16	7096 28

* not a standard spare part; please contact the manufacturer

Spare parts for the 8-channel Liquid End

Parts will differ slightly depending on nominal volume of Liquid End (picture shows spare parts for 50 µl Liquid End).

Pack of 1 (A), Pack of 3 (B).



Volume	A*	B
1 - 50 µl	7096 30	7033 43
20 - 300 µl	7096 32	7033 46

*incl. seal and mounting tool.

Liquid End 20-300µl with additional pressure ring.

You will find the printed operating instructions section, „Device and components“, as well as detailed information regarding the operation of the Liquid Handling Station software on your software data carrier under Manual.pdf, or by clicking on Start Display User Manual.



