Simple, intuitive, and compact.

Liquid Handling Station

The name BRAND® is synonymous with high precision volumetrics and high-performance life science products.

Years of experience have gone into the latest development from BRAND® – the Liquid Handling Station (LHS) and Liquid Handling Station flow (LHS flow). These pipetting systems handle daily routine tasks with the highest possible precision, leaving time for other work.

Versatile
Seven freely configurable work positions accommodate anything from individual vessels up to 384-well plates, solving nearly any pipetting need.

Intuitive
Intuitive software, no programming knowledge needed. Methods can be created in minutes!

Compact
Full functional flexibility in eight work positions with a small footprint. Small enough to fit on a lab bench!

Made in Germany.
Automated Liquid Handling

Simply uncomplicated!

The Liquid Handling Station from BRAND® combines 45 years of experience in the area of manual Liquid Handling with over 30 years in the manufacture of high-precision disposable items.

The pipette system works on the same air-interface principle as the piston-operated pipettes widely used in laboratories, and is designed for medium sample throughput.

The Liquid Handling Station takes care of simple, monotonous (and frequently error-prone) routine tasks as well as complex pipetting tasks, such as PCR, qPCR or cherry picking, working through them efficiently.

The Liquid Handling Station flow is ideal for handling samples that must be protected from particles and microorganisms.

Typical applications
- Preparation of ‘assay ready’ plates
- PCR-, qPCR- and ELISA Set-up
- Serial dilutions
- Replication of microtiter plates (96/96 and 384/384)
- Reformatting of plates (96/384 and 384/96)
- Cell cultures
- General liquid transfers in single vessels, strips, and plates in the ANSI/SLAS format
- Preparation and execution of enzyme assay
- DNA Normalization
- Cherry-picking
Automated Liquid Handling Consumables

Highly versatile!

BRAND® produces premium quality laboratory plastic consumables in one of the world’s largest cleanroom facilities of its kind. Perfect for high throughput applications, the BRAND® life science product line includes a multitude of microplates, PCR plates, microcentrifuge tubes, and pipette tips which can be used in the LHS & LHS flow.

**Microplates**

BRANDplates® microplates are available in a variety of different colors, well-number, well shapes and with a wide range of surface treatments for general assays, enzymatic assays, ELISAs and cell culture. All 96- and 384-well plates are manufactured according to ANSI/SLAS Standards 1 to 4, 2004 to ensure seamless integration with the LHS as well as third party robotic compliance.

**PCR Plates, Tubes, and Strips**

BRAND’s PCR tubes, strips, and plates are manufactured from the highest quality virgin resins without lubricants or additives that can skew PCR results or contaminate samples. BRAND PCR products are compatible with most common thermal cyclers.

**Microcentrifuge tubes**

BRAND® offers microcentrifuge tubes in volumes of 0.5 mL, 1.5 mL, and 2.0 mL. Excellent for containing small sample volumes, these microcentrifuge tubes can be spun up to 30,000 x g and are available colored for easy sample identification.

**Robotic Tips and Filter Tips**

All tips and filter tips up to 1000 μL for the Liquid Handling Station are free of DNA (< 40 fg), RNase (< 8.6 fg), endotoxins (< 1 pg), and ATP (< 1 fg). Sterile tips and packaging are manufactured exclusively under BIO-CERT® quality certification.

**Reagent Reservoirs**

Polypropylene reagent reservoirs are suitable for holding various solutions and multiple volumes.
A Closer Look
The Liquid Handling Station from BRAND®: Fast, quiet, and reliable.

The pipette system handles routine tasks at high speed and with the highest precision – quietly and reliably.

The Liquid Handling Station closes the gap between electronic pipettes and highly complex, expensive pipetting robots. It primarily consists of a 3-axis system, six different pipette modules (Liquid Ends), and a variety of adapters and racks.

The speeds and the dynamic movements of the axis system are designed to permit rapid, exact pipetting while simultaneously minimizing the risk of contamination due to loss of liquid drops during movement.

Adapters bring the plates/racks on the work table to a uniform height, reducing unnecessary vertical movements to save time during pipetting!

1 Door*
The Liquid Handling Station has a compact design and a unique door that allows it to be set up in close quarters in the lab. The door slides up easily and has mechanical breaks for gentle closing.

* Patent pending

2 Work table
The work table has eight work positions, seven of which use the ANSI/SLAS format and can be freely assigned for use with single vessels, PCR strips, reservoirs, microplates and more. The waste box in position 1 can hold up to three hundred, 300 μL tips or one hundred fifty, 1000 μL tips. The BRAND® Liquid Handling Station is an open system which works with consumables from many manufacturers. However, to obtain and ensure optimum results, the system works exclusively with BRAND robotic tips.
Variety for every application…

3 Pipette Modules (Liquid Ends)
The design of the pipette modules closely mirrors the familiar and trusted Transferpette® S pipette. Three single-channel Liquid Ends (SC) and three 8-channel Liquid Ends (MC) are available for contact-free liquid delivery. Manual liquid end changes are so quick and easy anyone can do them in only a few seconds. No tools are needed: Press the ejection button, remove the Liquid End, insert a new one – and you’re done! The volume testing of the pipette modules is carried out according to ISO 8655 part 6 leading to very high accuracy values and low CVs.

For the best possible results, the Liquid Handling Station is designed to be used exclusively with premium quality BRAND® robotic tips and filter tips.

4 Adapters and Racks
Different height adapters, tip adapters, and racks ensure stable support and an even working height for the plates and vessels used. The uniform working height decreases the time needed to complete liquid transfer tasks.

5 FlowBox* (only available with LHS flow)
The FlowBox directs filtered air in laminar, horizontal layers across the consumables. The air drawn in from the environment passes through an H14 HEPA filter (99.995% efficiency) and the air volume inside the cabinet is replaced 260 times per hour.

*patent pending
Software

Easy set up of standard protocols!

All conventional pipetting tasks that can be performed with conventional pipettes can quickly be defined as a method in the software to save time. Simple methods can be created in minutes – the intuitive software needs no programming skills.

Pipetting, dispensing, mixing – no problem!

Standard workflow:
1. Define the name for the pipetting method
2. Set up the work table
3. Define the transfer commands
4. Start executing
5. Done!

Application example

1. Defining the name for a method
Existing methods can be retrieved or modified.

2. Setting up the work table
   1. **Equipping list**: Selecting the work position to be used
   2. **Graphical view** (work table): 7 freely assignable work positions and 1 waste box
   3. **Settings**: Select consumables (labware)

This three-part screen layout is the same throughout the software, making method set up easy.

Functions:
- Professional user management
- Predefined liquid properties (liquid types) that can be changed or added at any time
- Disposable item (labware) database can be added to on a customer-specific basis
- Testing of inconsistencies by the software
- Automatic logging of procedures with customizable reports
- Context-sensitive help function
- Data import/export
- E-Mail report
- Timeline
2. Setting up the work table (cont.)

Once labware is assigned to a work position, its content is easily edited.

The system works with robotic pipette tips and filter tips from BRAND® to guarantee the highest possible precision.

3. Commands

Four commands are available:

**Transfer**: This command can be used to define nearly any pipetting task, such as multi-dispensing, serial dilution setup, pooling, etc.

**Wait**: Animated pause, for setting up incubation periods.

**Mix**: Mixing of samples.

**Break**: Manual interruption of the program sequence, for example to incubate or shake samples externally.

In the settings, a variety of predefined parameters can be changed as needed – from liquid types to prewetting of tips, even the determination of the immersion depth of the tips during liquid pickup and delivery.

The source and destination plates can easily be distinguished on the screen by color.
3. Commands (cont.)

Single plates or multiple plates can easily be designated for liquid transfer by selecting them with the mouse.

Even complex pipetting patterns can easily be set up in a very short time.

An import function permits effortless insertion of pipetting tasks, for example from spreadsheet calculation programs (normalization, cherry-picking, etc.).

To track the content of wells in detail at any time just scroll the mouse over any well/location.

4. Execute

The Execute command starts the method.

First the layout of the work table is confirmed to be sure that the labware has been correctly placed and the required Liquid End has been inserted.

The progress of the work sequence can be monitored at any time. In addition, there is a simulation function that allows the user to view an animated process prior to physically starting the method. This feature prevents any potential method errors.

The user can be informed, with others about intervention points and the end of the method by e-mail.

A timeline shows the duration of the overall method, the individual steps, and even the points in time when interventions are required (e.g., changing the 200 μL liquid end.

5. Done!
Service Agreements

Silver — Gold

The warranty period for the Liquid Handling Station is one year. With a BrandTech® Gold service agreement, this warranty can be extended by an additional 12 months.

<table>
<thead>
<tr>
<th>Service</th>
<th>Silver</th>
<th>Gold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service of mechanical components</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Cleaning and greasing the system</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Adjusting the Liquid Handling Station</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Calibrating Liquid Ends</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Software-Update</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Free replacement of wear parts</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>12-month warranty extension</td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>

Optional equipment qualification is also available:

- **Installation Qualification (IQ)**

  Based on IQ test plans and a subsequent report, BRAND® documents that the Liquid Handling Station and its software meet the requirements of the product specification. Among other things, the scope of delivery is compared with the order data, the correct installation of the motor controller is checked, the system configuration is tested, compliance with legal safety regulations is examined, and user training is performed and documented.

- **Operational Qualification (OQ)**

  The correct functioning of the Liquid Handling Station and its components is tested against standards. True samples are tested against end user and BRAND® specifications. A test plan is executed and a report issued and approved by the user.
Technical Data

Specifications

**Liquid Ends**
1-channel Liquid Ends (SC), 8-channel Liquid Ends (MC)

**Volume ranges**
1-channel Liquid Ends: 1 - 50 μL, 10 - 200 μL, 40 - 1000 μL
8-channel Liquid Ends: 1 - 50 μL, 20 - 300 μL, 40-1000 μL

**Working positions**
8 working positions: P2 - P8, P1 for waste box

**Weight (LHS)**
approx. 25 kg

**Weight (LHS flow)**
approx. 35 kg

**Dimensions**
LHS—W 595 x D 485 x H 530 mm (closed)/690 mm (open)
LHS flow—W 595 x D 655 x H 652 mm (closed)

**Operating temperature**
+15° C - +35° C

**Transport temperature**
-20° C - +65° C

**Supply voltage**
100 - 240 V, 50/60 Hz

**Fuse**
2 x T 2.5 A H 250 V

**Interfaces**
1 USB

**Power consumption**
max. 150 W

**Protection class**
Protection class I

**Housing**
Protection class IP20

**Safety standards**
IEC 61010-1

**EMC compatibility**
Radio interference and interference resistance compliant with DIN EN 61326-1

Accuracy table

<table>
<thead>
<tr>
<th>Liquid End</th>
<th>Volume range, μL</th>
<th>Volume step, μL</th>
<th>A* ≤ ± %</th>
<th>CV* ≤ %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-channel</td>
<td>1-50</td>
<td>50</td>
<td>1.5</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25</td>
<td>2.0</td>
<td>0.8</td>
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<tr>
<td></td>
<td></td>
<td>5</td>
<td>6.0</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>10-200</td>
<td>200</td>
<td>1.0</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td>1.5</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20</td>
<td>4.0</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>40-1000</td>
<td>1000</td>
<td>1.0</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>500</td>
<td>1.5</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td>3.0</td>
<td>1.0</td>
</tr>
<tr>
<td>8-channel</td>
<td>1-50</td>
<td>50</td>
<td>1.5</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25</td>
<td>2.0</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>8.0</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>20-300</td>
<td>300</td>
<td>1.2</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>150</td>
<td>1.6</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30</td>
<td>5.0</td>
<td>2.5</td>
</tr>
</tbody>
</table>

* Final test values related to the nominal capacity (maximum volume) or the indicated volume steps indicated on the Liquid End, obtained when Liquid End and distilled water are equilibrated at ambient temperature within the Liquid Handling Station (20° C/68° F), according to DIN EN ISO 8655. A = Accuracy, CV = Coefficient of variation

LHS flow Air Handling Specifications

<table>
<thead>
<tr>
<th></th>
<th>Door closed</th>
<th>Door open</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noise level</td>
<td>60 dBA</td>
<td>67 dBA</td>
</tr>
<tr>
<td>Speed of air</td>
<td>0.4 m/s</td>
<td>0.5 m/s</td>
</tr>
<tr>
<td>Volumetric flow</td>
<td>22 m³/h</td>
<td>29 m³/h</td>
</tr>
<tr>
<td>Air exchange</td>
<td>260 times/h</td>
<td>330 times/h</td>
</tr>
<tr>
<td>Filter</td>
<td>HEPA 14 acc. to DIN EN 1822</td>
<td></td>
</tr>
</tbody>
</table>
Ordering Data

Liquid Handling Station
Including motor control unit, operating software, user manual, power cable, USB cable, documentation, and on-site training.

Cat. No. 709400

Liquid Handling Station flow
Including FlowBox filtration unit, motor control unit, operating software, USB cable, power cable, user manual, and on-site training.

Cat. No. 709402

Accessories

Pipette modules (Liquid Ends)
For use with the Liquid Handling Station, autoclavable at 121 °C, 20 min. DE-M marking, quality certificate included. Pack of 1.

<table>
<thead>
<tr>
<th>Description</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC 1 - 50 μL</td>
<td>709410</td>
</tr>
<tr>
<td>SC 10 - 200 μL</td>
<td>709413</td>
</tr>
<tr>
<td>SC 40 - 1000 μL</td>
<td>709416</td>
</tr>
<tr>
<td>MC 1 - 50 μL</td>
<td>709420</td>
</tr>
<tr>
<td>MC 20 - 300 μL</td>
<td>709423</td>
</tr>
<tr>
<td>MC 40 - 1000 μL</td>
<td>709424</td>
</tr>
</tbody>
</table>

Waste box
Pack of 5.

Cat. No. 709458

PCR cooler
96-well, indirect cooling.
Pack of 2.

Cat. No. 709456

Height Adapters
Pack of 1.

<table>
<thead>
<tr>
<th>Description</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height adapter 60mm</td>
<td>709430</td>
</tr>
<tr>
<td>Height adapter 30mm</td>
<td>709432</td>
</tr>
<tr>
<td>Tip adapter</td>
<td>709434</td>
</tr>
</tbody>
</table>

Adapter racks for single vessels and plates
Pack of 1.

<table>
<thead>
<tr>
<th>Description</th>
<th>Positions</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microtube rack 1.5 mL</td>
<td>24</td>
<td>709450</td>
</tr>
<tr>
<td>Microtube rack 0.5 mL</td>
<td>24</td>
<td>709452</td>
</tr>
<tr>
<td>Microtube rack 5.0 mL</td>
<td>9</td>
<td>709453</td>
</tr>
<tr>
<td>96-well PCR</td>
<td>–</td>
<td>709446</td>
</tr>
<tr>
<td>384-well PCR</td>
<td>–</td>
<td>709448</td>
</tr>
<tr>
<td>12x75 mm TubeRack</td>
<td>24</td>
<td>709455</td>
</tr>
</tbody>
</table>

Holder for Liquid Ends
Liquid Ends, not included
Pack of 1.

<table>
<thead>
<tr>
<th>Description</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>for 3 Liquid Ends</td>
<td>709463</td>
</tr>
<tr>
<td>for 5 Liquid Ends</td>
<td>709465</td>
</tr>
</tbody>
</table>
**Accessories** (cont.)

**Reagent reservoirs**

PP. Pack of 10.

<table>
<thead>
<tr>
<th>Description</th>
<th>Working volume per column*</th>
<th>Bottom style</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-column</td>
<td>220 mL</td>
<td>pyramid bottom, 96-well</td>
<td>701450</td>
</tr>
<tr>
<td>12-column, low profile</td>
<td>6 mL</td>
<td>pyramid bottom</td>
<td>701452</td>
</tr>
<tr>
<td>4-column</td>
<td>60 mL</td>
<td>pyramid bottom</td>
<td>701454</td>
</tr>
<tr>
<td>6-column</td>
<td>40 mL</td>
<td>pyramid bottom</td>
<td>701456</td>
</tr>
<tr>
<td>1-column, low profile</td>
<td>50 mL</td>
<td>flat bottom</td>
<td>701458</td>
</tr>
</tbody>
</table>

* The indicated volume applies to the use with automated systems

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**Robotic tips and robotic filter tips for the Liquid Handling Station**

All tips and filter tips up to 1000 μL for the Liquid Handling Station are free of DNA (< 40 fg), RNase (< 8.6 fg), endotoxins (< 1 pg), and ATP (< 1 fg). Sterile tips and packaging are manufactured exclusively under BIO-CERT®-quality certification.

**TipRack robotic tips, DE-M marking**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 50</td>
<td>10 TipRacks, 96 each</td>
<td>732146</td>
<td>732166</td>
</tr>
<tr>
<td>10 - 200</td>
<td>10 TipRacks, 96 each</td>
<td>732148</td>
<td>732168</td>
</tr>
<tr>
<td>10 - 300</td>
<td>10 TipRacks, 96 each</td>
<td>732150</td>
<td>732170</td>
</tr>
<tr>
<td>40 - 1000</td>
<td>10 TipRacks, 96 each</td>
<td>732152</td>
<td>732172</td>
</tr>
</tbody>
</table>

**TipRack robotic filter tips, DE-M marking**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 20</td>
<td>10 TipRacks, 96 each</td>
<td>732646</td>
<td>732666</td>
</tr>
<tr>
<td>10 - 100</td>
<td>10 TipRacks, 96 each</td>
<td>732650</td>
<td>732670</td>
</tr>
<tr>
<td>10 - 200</td>
<td>10 TipRacks, 96 each</td>
<td>732652</td>
<td>732672</td>
</tr>
<tr>
<td>40 - 1000</td>
<td>10 TipRacks, 96 each</td>
<td>732654</td>
<td>732674</td>
</tr>
</tbody>
</table>

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