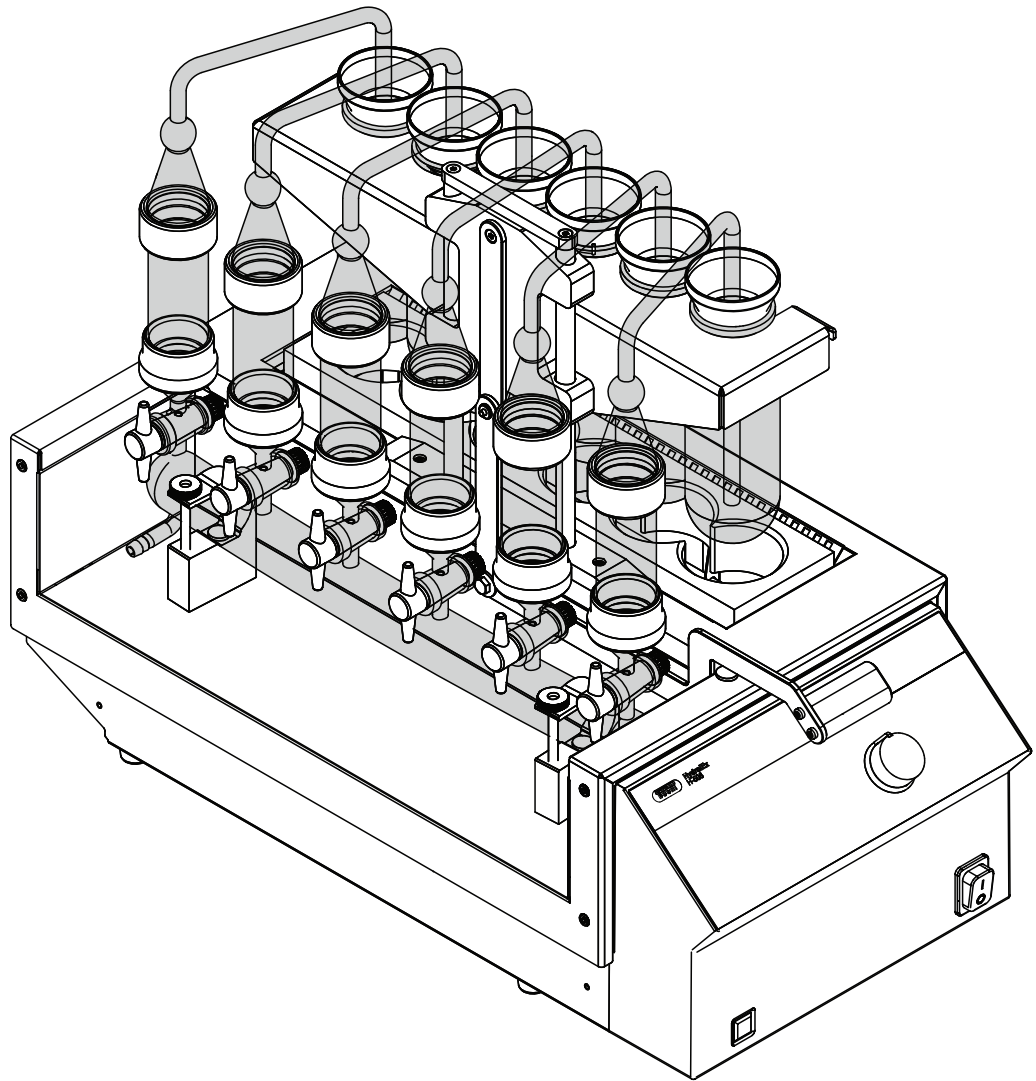




# HydroEx H-506

Operation Manual



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# 1 About this document

This operation manual is applicable for all variants of the instrument.

Read this operation manual before operating the instrument and follow the instructions to ensure safe and trouble-free operation.

Keep this operation manual for later use and pass it on to any subsequent user or owner.

BÜCHI Labortechnik AG accepts no liability for damage, faults and malfunctions resulting from not following this operation manual.

If you have any questions after reading this operation manual:

- ▶ Contact BÜCHI Labortechnik AG Customer Service.

<https://www.buchi.com/contact>

## 1.1 Warning notices in this document

Warning notices warn you of dangers that can occur when handling the device.




There are four danger levels, each identifiable by the signal word used.

Signal word	Meaning
DANGER	Indicates a danger with a high level of risk which could result in death or serious injury if not prevented.
WARNING	Indicates a danger with a medium level of risk which could result in death or serious injury if not prevented.
CAUTION	Indicates a danger with a low level of risk which could result in minor or medium-severity injury if not prevented.
NOTICE	Indicates a danger that could result in damage to property.

## 1.2 Symbols

The following symbols may be displayed in this instruction manual or on the device:

### 1.2.1 Warning symbols

Symbol	Meaning
	Hot surface
	General warning
	Breakable items

### 1.2.2 Mark-ups and symbols



#### NOTE

This symbol draws attention to useful and important information.

- This character draws attention to a requirement that must be met before the instructions below are carried out.

► This character indicates an instruction that must be carried out by the user.

⇒ This character indicates the result of a correctly carried out instruction.

<b>Mark-up</b>	<b>Explanation</b>
<i>Window</i>	Software Windows are marked-up like this.
<i>Tab</i>	Tabs are marked-up like this.
<i>Dialog</i>	Dialogs are marked-up like this.
<i>[Button]</i>	Buttons are marked-up like this.
<i>[Field names]</i>	Field names are marked-up like this.
<i>[Menu / Menu item]</i>	Menus or menu items are marked-up like this.
<b>Status</b>	Status is marked-up like this.
<b>Signal</b>	Signals are marked-up like this.

### 1.3 Trademarks

Product names and registered or unregistered trademarks that are used in this document are used only for identification and remain the property of the owner in each case.

## 2 Safety

### 2.1 Proper use

The instrument is designed and built for laboratories. It serves for the hydrolysis of samples for fat determination with the use of diluted hydrochloric acid.

### 2.2 Use other than intended

Use of any kind other than that described in Chapter 2.1 "Proper use", page 7 and any application that does not comply with the technical specifications constitutes use other than that intended.

In particular, the following applications are not permissible:

- Use of the instrument in rooms which require ex-protected instruments.
- Use of samples, which can explode or inflame (example: explosives, oxidizing, etc.) due to shock, friction, heat or spark formation.
- Use in overpressure situations.
- Use without ventilation or fume hood.
- Use with flammable substances.

### 2.3 Staff qualification

Unqualified persons are unable to identify risks and are therefore exposed to greater dangers.

The device may only be operated by suitably qualified laboratory staff.

These operating instructions are aimed at the following target groups:

#### Users

Users are persons that meet the following criteria:

- They have been instructed in the use of the device.
- They are familiar with the contents of these operating instructions and the applicable safety regulations and apply them.
- They are able on the basis of their training or professional experience to assess the risks associated with the use of the device.

#### Operator

The operator (generally the laboratory manager) is responsible for the following aspects:

- The device must be correctly installed, commissioned, operated and serviced.
- Only suitably qualified staff may be assigned the task of performing the operations described in these operating instructions.
- The staff must comply with the local applicable requirements and regulations for safe and hazard-conscious working practices.
- Safety-related incidents that occur while using the device should be reported to the manufacturer (quality@buchi.com).

## BUCHI service technicians

Service technicians authorized by BUCHI have attended special training courses and are authorized by BÜCHI Labortechnik AG to carry out special servicing and repair measures.

## 2.4 Location of warning signs on the product

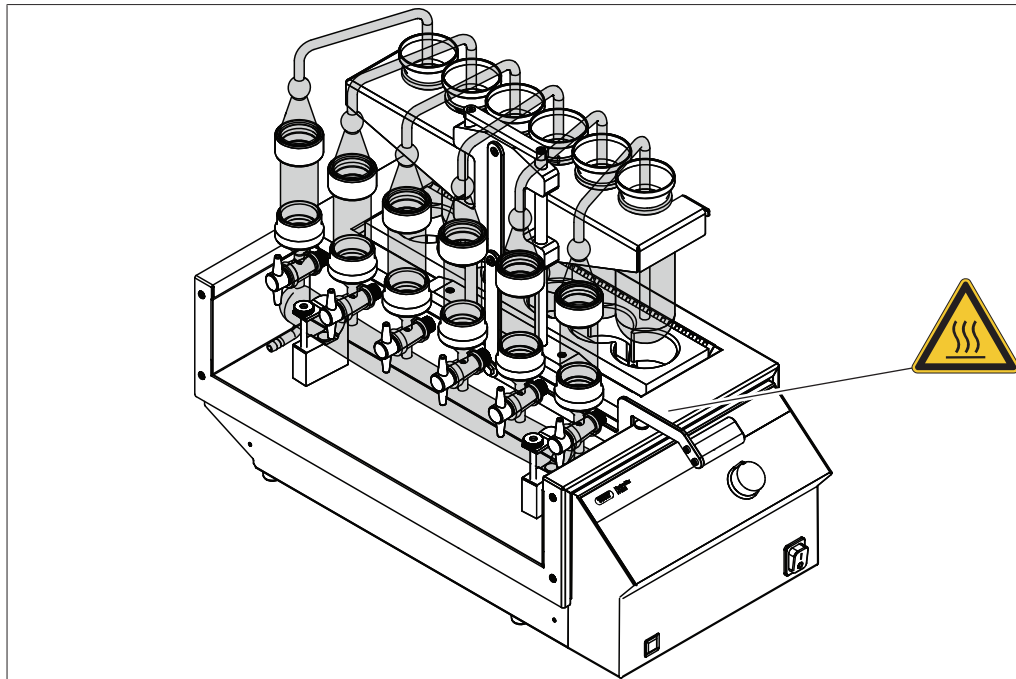



Fig. 1: Location of warning signs

 Hot surface

## 2.5 Residual risks

The device has been developed and manufactured using the latest technological advances. Nevertheless, risks to persons, property or the environment can arise if the device is used incorrectly.

Appropriate warnings in this manual serve to alert the user to these residual dangers.

### 2.5.1 Hot surfaces

The surfaces of the device can become very hot. If touched they can cause skin burns.

- ▶ Do not touch hot surfaces or else wear suitable protective gloves.

### 2.5.2 Faults during operation

If a device is damaged, sharp edges, moving parts or exposed electrical wires can cause injuries.

- ▶ Regularly check device for visible damage.
- ▶ If faults occur, switch off the device immediately, unplug the power cord and inform the operator.
- ▶ Do not continue to use devices that are damaged.



### 2.5.3 Glass breakage

Broken glass can cause severe cuts.

Minor damage to the ground joints impairs the sealing effect and may therefore diminish suction capacity.

- Handle the glass components carefully and do not drop them.
- Always place the glassware in a suitable holder when they are not in use.
- Always visually inspect glass components for damage every time they are to be used.
- Do not continue to use glass components that are damaged.
- Always wear protective gloves when disposing of broken glass.

## 2.6 Personal protective equipment

Depending on the application, hazards due to heat and/or corrosive chemicals may arise.

- ▶ Always wear appropriate personal protective equipment such as safety goggles, protective clothing and gloves.
- ▶ Make sure that the personal protective equipment meets the requirements of the safety data sheets for all chemicals used.

## 2.7 Modifications

Unauthorized modifications may impair safety and lead to accidents.

- ▶ Use only genuine BUCHI accessories, spare parts and consumables.
- ▶ Technical modifications to the device or accessories should only be carried out with the prior written approval of BÜCHI Labortechnik AG and only by authorized BUCHI technicians.

BUCHI accepts no liability whatsoever for damage arising as a result of unauthorized modifications.

## **3 Product description**

### **3.1 Description of function**

The hydrolysis frees fatty substances which are mechanically surrounded by different constituents (carbohydrates and protein in undamaged cells or starch membranes). This is also true for colloid-disperse fractions (protein) which, as a result of surface forces, coat the fat drops (milk, cream, cheese) and for certain fat fractions which are bound, chemically or adsorptively to other components (phosphatide-protein complexes in yeast, eggs, etc.).

For fat determination including acid hydrolysis such as the method according to Weibull-Stoldt in food and animal feed, the product is to be hydrolyzed to make the fat accessible for extraction. Thus a reproducible fat determination is possible.

#### **3.1.1 Principle of hydrolysis**

1. The sample is boiled in hydrochloric acid to break down proteins and high-molecular carbohydrates into acid-soluble constituents.
2. The sample is filtered over a layer of Celite® and sand in a glass sample tube and dried. The free fat in the hydrolysate adsorbs on the Celite® in the glass sample tube. The underlying sand layer prevents the Celite® from reaching the frit of the glass sample tube.
3. The fat can be extracted with an appropriate solvent.

## 3.2 Configuration

### 3.2.1 Front view

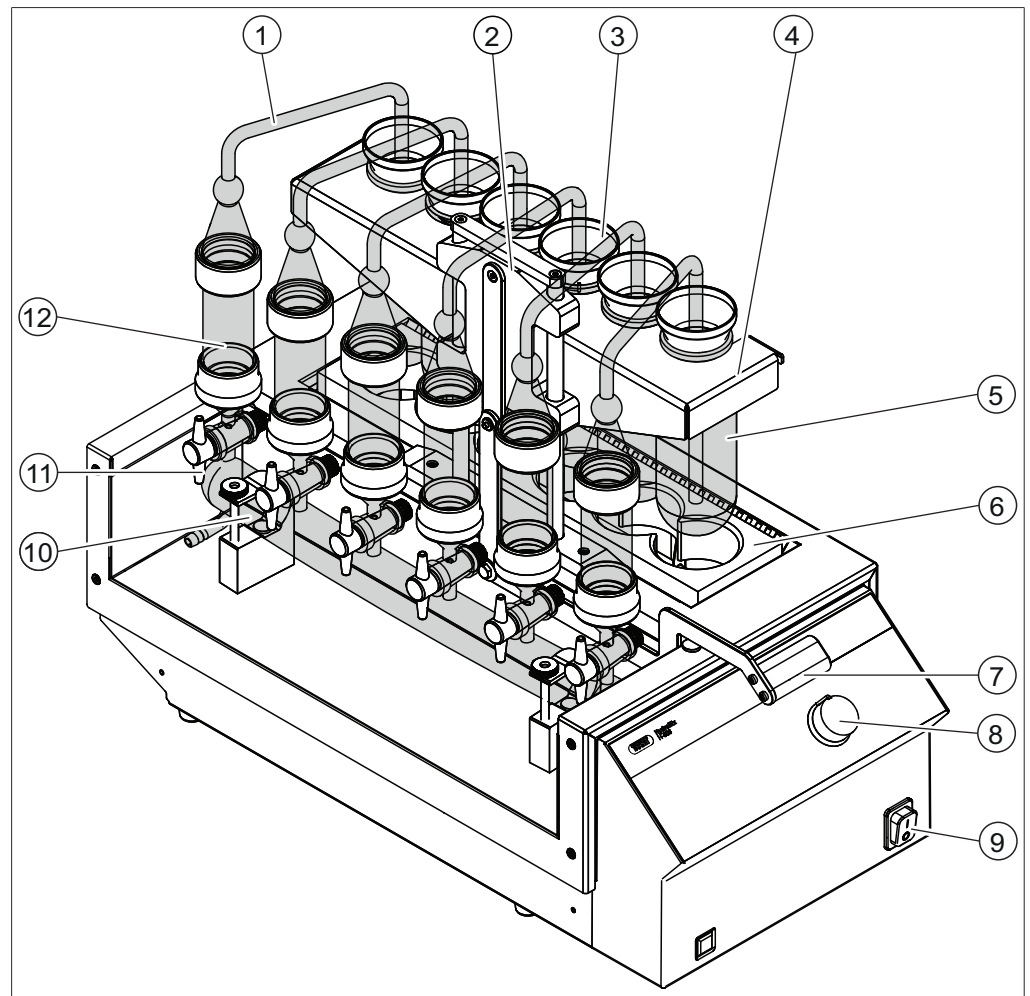


Fig. 2: Front view

- |    |                        |    |                             |
|----|------------------------|----|-----------------------------|
| 1  | Sample aspiration tube | 2  | Lift device                 |
| 3  | Rinsing funnel         | 4  | Rack                        |
| 5  | Hydrolysis vessel      | 6  | Upper insulation plate      |
| 7  | Lever                  | 8  | Power regulator             |
| 9  | On/Off master switch   | 10 | Suction tube                |
| 11 | Stopcock               | 12 | Glass sample tube with frit |

### 3.2.2 Rear view

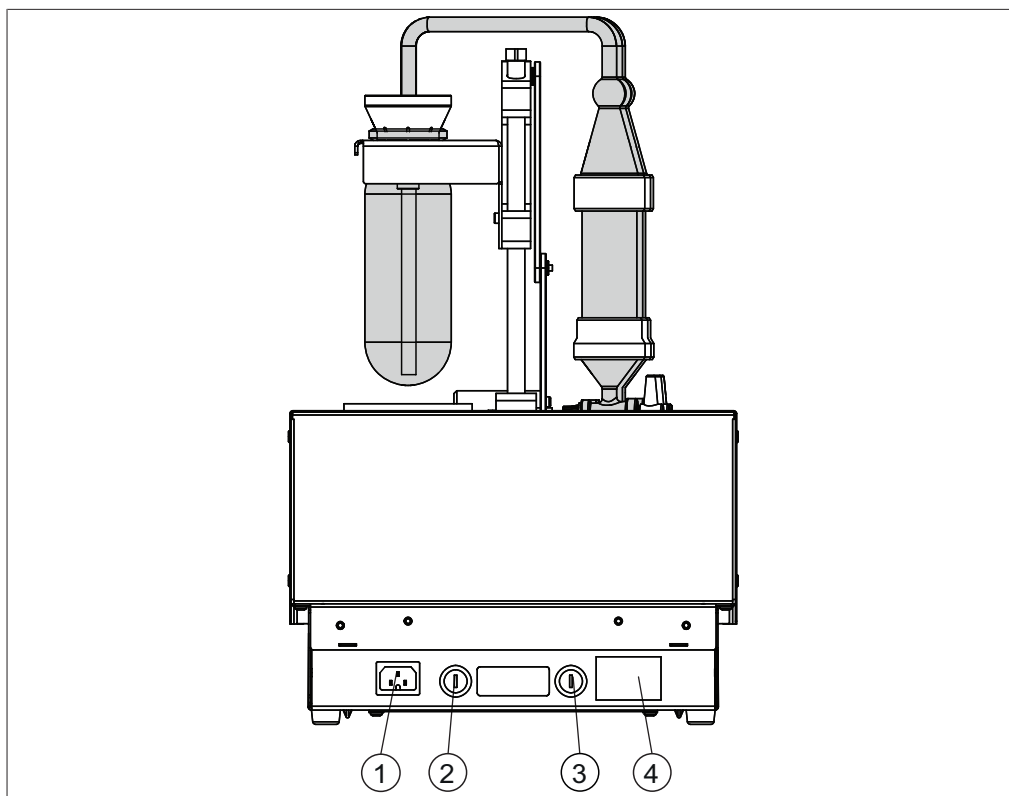


Fig. 3: Rear view

- 1 Power supply connection
- 2 Fuse
- 3 Fuse
- 4 Type plate

### 3.3 Type plate

The type plate identifies the instrument. The type plate is located at the rear of the instrument.

### 3.4 Scope of delivery



**NOTE**

The scope of delivery depends of the configuration of the purchase order.

Accessories are delivered as per the purchase order, order confirmation, and delivery note.

### 3.5 Technical data

#### 3.5.1 HydrolEx H-506

Specification	HydrolEx H-506 for 115 V	HydrolEx H-506 for 230 V
Dimensions (W x D x H)	312 x 614 x 470 mm	312 x 614 x 470 mm
Minimum clearance (W x D)	200 mm	200 mm
Minimum clearance (H)	300 mm	300 mm

<b>Specification</b>	<b>HydroEx H-506 for 115 V</b>	<b>HydroEx H-506 for 230 V</b>
Weight (without glassware)	13 kg	13 kg
Weight (with glassware)	16.5 kg	16.5 kg
Connection voltage	110 - 120 ± 10 % VAC	220 - 240 ± 10 % VAC
Fuse	10 A	10 A
Frequency	50 / 60 Hz	50 / 60 Hz
Overvoltage category	II	II
Protection class	1	1
Pollution degree	2	2
IP Code	-	-
Power consumption	1200 W	1200 W
Temperature range heater	70 - 495 °C	70 - 495 °C
Total Heating power	1200 W	1200 W
Number of hydrolysis positions	6	6
Approvals	CE / CSA	CE / CSA

### 3.5.2 Ambient conditions

For indoor use only.

Max. altitude above sea level	2000 m
Ambient temperature	5–40 °C
Maximum relative humidity	80% for temperatures up to 31 °C decreasing linearly to 50 % relative humidity at 40 °C
Storage temperature	max. 45 °C

### 3.5.3 Material

<b>Component</b>	<b>Materials of construction</b>
Housing	Stainless Steel
Insulation plate heating	PROMATECT MST
Rinsing funnel	Polypropylene
Hydrolysis vessel	Borosilikat 3.3
Sample aspiration tube	Borosilikat 3.3
Rubber coupling	FKM
Glass sample tube	Borosilikat 3.3
Suction tube	Borosilikat 3.3
Stopcock	PTFE
Vacuum hose	Natural rubber

## 4 Transport and storage

### 4.1 Transport



#### NOTICE

##### Risk of breakage due to incorrect transportation

Make sure that the instrument is fully dismantled.

Pack every instrument components properly to prevent breakage. Use the original packaging whenever possible.

Avoid sharp movements during transit.

- ▶ After transporting, check the instrument and all glass components for damage.
- ▶ Damage that has occurred in transit should be reported to the carrier.
- ▶ Keep packaging for future transportation.

### 4.2 Storage

- ▶ Make sure that the ambient conditions are complied with (see Chapter 3.5 "Technical data", page 12).
- ▶ Wherever possible, store the device in its original packaging.
- ▶ After storage, check the device, all glass components, seals and tubing for damage and replace if necessary.

### 4.3 Lifting the instrument

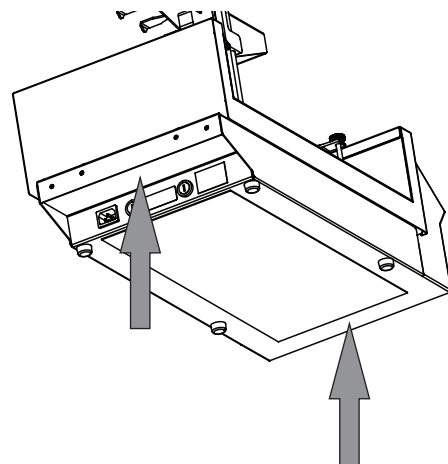


#### NOTICE

##### Dragging the instrument can damage the feet of the instrument.

- ▶ Lift the instrument when positioning or re-locating.

- ▶ Lift the instrument at the points indicated.



## 5 Installation

### 5.1 Before installation



#### NOTICE

##### Instrument damage due to switching it on too early.

Switching on the instrument too early after transportation can cause damage.

- ▶ Climatize the instrument after transportation.

### 5.2 Installation site

The installation site must meet the following requirements:

- Firm, level surface
- Take into account the maximum product dimensions and weight. See Chapter 3.5 "Technical data", page 12
- Fume hood
- Make sure that cables / tubes can be routed safely
- Own mains outlet socket
- Own water tap (only when using a water jet pump)



#### NOTE

Make sure that the power supply can be disconnected at any time in an emergency.

### 5.3 Establishing electrical connections



#### NOTE

Observe the regulatory provisions when connecting the instrument to power supply.

- ▶ Use external main switches (e.g., emergency off) in accordance with the standards IEC 60947-1 and IEC 60947-3.
- ▶ Use additional electrical safety features (e.g., residual-current circuit breakers) to comply with local laws and regulations.

The power supply must fulfill the following conditions:

1. Provide the mains voltage and frequency specified on the type plate of the instrument.
2. Be designed for the load imposed by the instruments connected.
3. Be equipped with suitable fuses and electrical safety features.
4. Be equipped with a proper grounding.



## NOTICE

### Risk of property damage and diminished performance due to use of unsuitable power cables.

The power supply cables supplied with the product by BUCHI precisely match the requirements of the device. If other power cables that do not meet those requirements are used, the device may be damaged and/or its performance diminished.

- ▶ Use only the power supply cables supplied with the product or ordered separately from BUCHI.
- ▶ If using any other power supply cables, make sure that they match the specifications on the type plate.

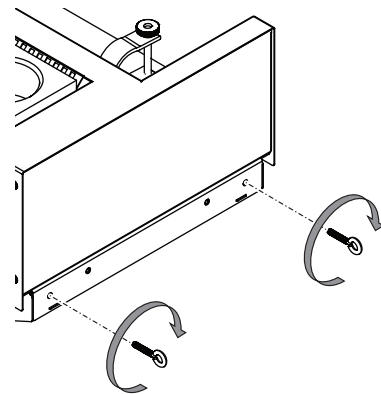
- 
- ▶ Make sure that all connected devices are grounded.
  - ▶ Make sure that the power plug is freely accessible at all times.
  - ▶ Insert the power cable into the connection labeled **Power IN** on the back of the instrument.
  - ▶ Insert the power plug into the power socket.

## 5.4 Securing against earthquakes



### NOTE

- ▶ Use two eye screws M4 x 10.
- ▶ Screw-in depth 10 mm.
- ▶ Attach two eye screws to the instrument.
- ▶ Attach the instrument to a fixed point using a strong cord or a wire.



## 5.5 Assembling the suction tube



### NOTE

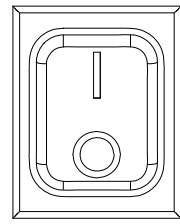
Malfunction because of incorrect assembled suction tube.

Make sure:

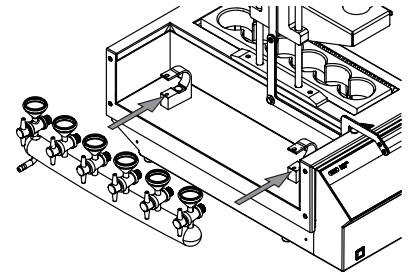
- ▶ That the stopcocks are freely accessible.
- ▶ That the openings are facing upright.



- ▶ Switch the **On/Off** master switch to Off.

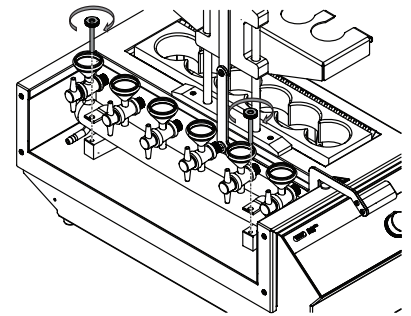


- ▶ Put the suction tube on the support.



- ▶ Fasten the suction tube on the support with the screws.

⇒ The suction tube is assembled



## 5.6 Assembling suction pump

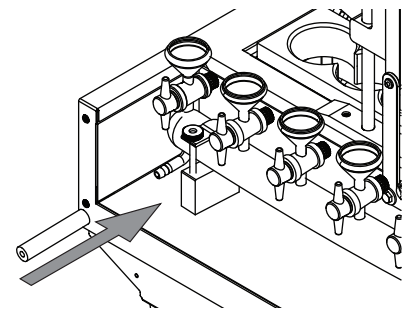
There are two possibilities of vacuum supply:

- Vacuum pump see Chapter 10.1.2 "Accessories", page 29
- Waterjet pump see Chapter 10.1.2 "Accessories", page 29

Precondition:

- The suction tube is assembled. See Chapter 5.5 "Assembling the suction tube", page 16

- ▶ Moisten the vacuum tube with water.
- ▶ Install the vacuum tube onto the connection at the suction tube.
- ▶ Connect the other side of the vacuum tube to the vacuum supply.



## 5.7 Assembling the lower rubber couplings



### NOTICE

#### Broken glass

Hold the suction tube on a point not indicated can cause glass breakage.

- ▶ Hold the suction tube at the point indicated.

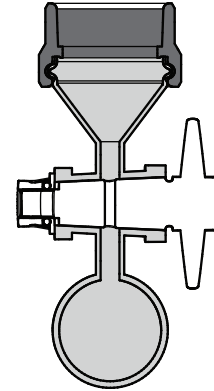
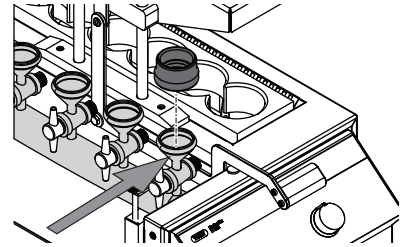
Precondition:

- ☑ The suction tube is assembled. See Chapter 5.5 "Assembling the suction tube", page 16

- ▶ Moisten the rubber coupling with water.
- ▶ Slip over the rubber coupling on the suction tube.

- ▶ Make sure that the rubber coupling is in the correct position.

⇒ The rubber coupling is assembled.



- ▶ Assemble all rubber couplings in the same way.

## 6 Operation

### 6.1 Assembling the sample aspiration tube



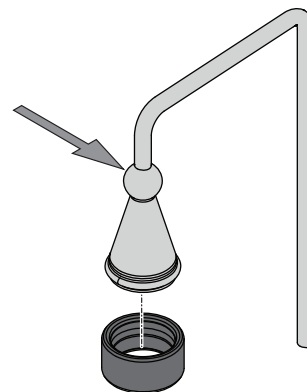
#### NOTICE

##### Broken glass

Hold the sample aspiration tube on a point not indicated can cause glass breakage.

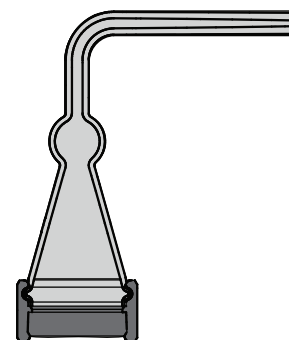
- ▶ Hold the sample aspiration tube at the point indicated.

- ▶ Moisten the upper rubber coupling with water.
- ▶ Slip over the top rubber coupling on the sample aspiration tube.



- ▶ Make sure that the upper rubber coupling is in the correct position.

⇒ The sample aspiration tube is assembled.



- ▶ Assemble all upper rubber couplings in the same way.

### 6.2 Preparing the sample



#### NOTE

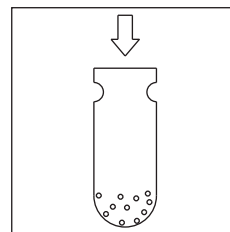
The maximum sample weight is 10 g.

Before performing a hydrolysis prepare the sample.

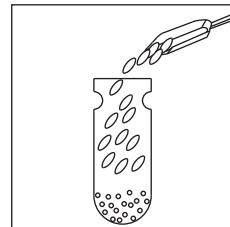
Precondition:

- All commissioning operations have been completed. See Chapter 5 "Installation", page 15
- There are no samples in the instrument.
- ▶ Put the lever at the instrument in the lower position.

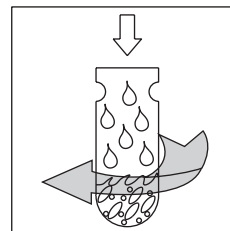
- ▶ Put 2 g Celite® 545 into the hydrolysis vessel.



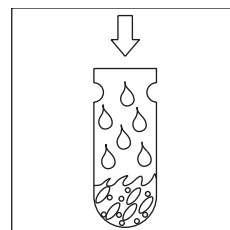
- ▶ Weigh-in sample.



- ▶ Add 50 mL 4 M HCl and mix the sample with the Celite® and the HCl.



- ▶ Rinse the walls of the hydrolysis vessel with 50 mL, 4 M HCl.

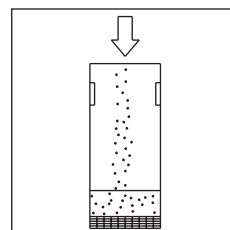


#### NOTE

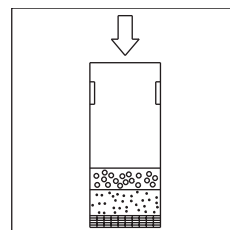
Use quartz sand with a grain size of 0.3 - 0.9 mm.

- ▶ In case the grain size is too small it will clog the frit of the glass sample tube.
- ▶ In case the grain size is too large the Celite® will pass through the frit of the sample tube during filtration.

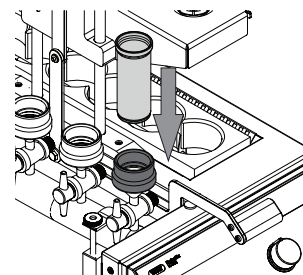
- ▶ Apply approx. 20 g quartz sand equally in the glass sample tube.



- ▶ Add a layer of 2 g Celite® 545 in the glass sample tube.



- ▶ Insert the glass sample tube in the rubber coupling at the instrument.
- ⇒ The glass sample tube is prepared.



### 6.3 Performing a hydrolysis



#### NOTE

To reduce processing time preheat the instrument.

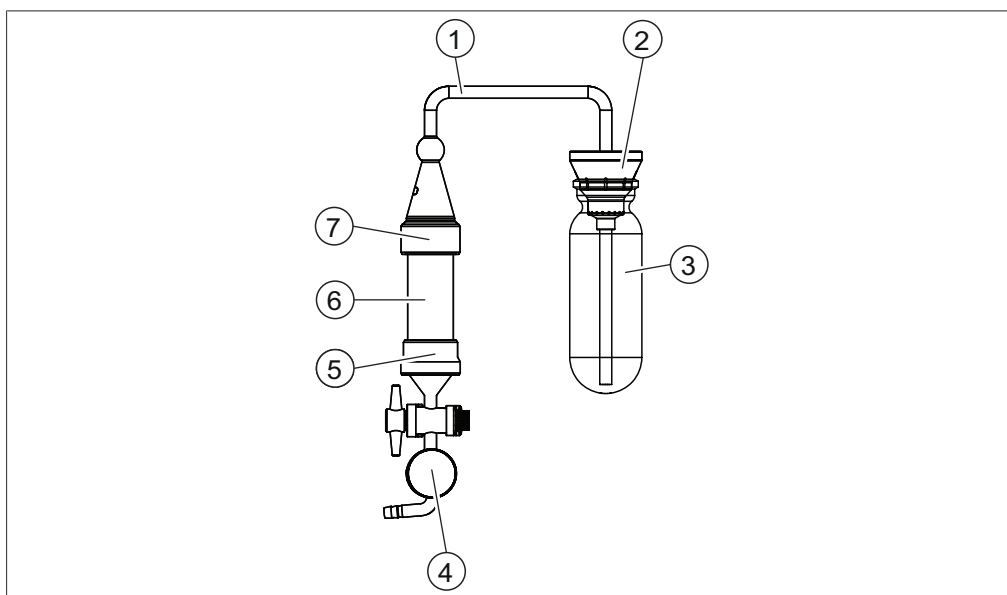


Fig. 4: Instrument assembled for hydrolysis

- |   |                        |   |                             |
|---|------------------------|---|-----------------------------|
| 1 | Sample aspiration tube | 2 | Rinsing funnel              |
| 3 | Hydrolysis vessel      | 4 | Suction tube                |
| 5 | Upper rubber coupling  | 6 | Glass sample tube with frit |
| 7 | Lower rubber coupling  |   |                             |

#### Precondition:

- All installations are done. See Chapter 5 "Installation", page 15.
- The samples are prepared.
- The sample aspiration tube is assembled. See Chapter 6.1 "Assembling the sample aspiration tube", page 19.
- ▶ Switch the **On/Off** master switch in position On.
- ▶ Turn the **power regulator** to position **Preheat**.
- ▶ Wait 10 minutes.
- ▶ Close the stopcocks for the unused positions.
- ▶ Put the hydrolysis vessel in the rack at the instrument.
- ▶ Put the rinsing funnel onto the hydrolysis vessels.
- ▶ Lower the hydrolysis vessels by lifting the lever.

- ▶ Install the sample aspiration tube.
- ▶ Turn the **power regulator** to position 2.5.
- ▶ As soon as all samples start boiling switch on the suction pump.

## 6.4 Performing a filtration



### NOTE

Only use distilled water with a temperature between 40 and 50 °C.

Precondition:

- All samples are hydrolyzed according the requirements.
- ▶ Turn the **power regulator** to position **Off**.
- ▶ Add water in each position.
- ▶ Lift the hydrolysis vessels by lowering the lever.
  - ⇒ The samples from the hydrolysis vessels will be moved by suction.
- ▶ Rinse the hydrolysis vessels.
- ▶ Wait until the content of the hydrolysis vessel is completely transferred.
- ▶ Repeat the rinsing step of the hydrolysis vessel three times.
- ▶ Remove the sample aspiration tube.
- ▶ Remove the glass sample tube from the rubber coupling.
- ▶ Perform a pH-test.

The following results are possible:

- Neutral
- Acidic

### Neutral

Precondition:

- The result of the pH-test is neutral.
- ▶ The hydrolysis is completed.

### Acidic

Precondition:

- The result of the pH-test is acidic.
- ▶ Put the sample tube back to the rubber couplings at the instrument.
- ▶ Install the sample aspiration tube.
- ▶ Rinse the hydrolysis vessels.
- ▶ Perform a pH-test.

## 6.5 Ending a hydrolysis

- ▶ Dry the sample for further processing.

## 6.6 Shutting down the instrument

- ▶ Switch the On/Off master switch to Off.

## 7 Cleaning and servicing



### NOTE

Users may only carry out the servicing and cleaning operations described in this section.

Any servicing and repair work which involves opening up the casing may only be carried out by BUCHI service technicians.

- ▶ Use only genuine BUCHI consumables and spare parts in order to ensure correct operation of the device and preserve the warranty.

### 7.1 Regular maintenance work



#### CAUTION

#### Hot surfaces.

Skin burns from hot surfaces.

- ▶ Let the instrument cool down sufficiently before carrying out any maintenance work.

Component	Action	Frequency
Glass parts	<ul style="list-style-type: none"> <li>▶ Clean the glass parts with commercially available cleaning agents.</li> <li>▶ If heavily soiled, use ethanol or a mild detergent.</li> <li>▶ <b>WARNING! Do not clean the glass sample tube with frit in an ultrasonic bath.</b></li> <li>▶ Dry the glass parts fully.</li> <li>▶ Check each part visually for cracks, scratches and for any parts or sections that might have splintered off.</li> <li>▶ Replace the damaged glass part.</li> </ul>	Daily
Rubber couplings	▶ Rinse the rubber couplings with water.	Daily
Suction tube	<ul style="list-style-type: none"> <li>▶ Rinse the stopcocks.</li> <li>▶ Make sure the stopcocks move easily.</li> </ul>	Weekly
Housing	<ul style="list-style-type: none"> <li>▶ Wipe down the casing with a damp cloth.</li> <li>▶ If heavily soiled, use ethanol or a mild detergent.</li> </ul>	Weekly
Warning symbols	<ul style="list-style-type: none"> <li>▶ Check that the warning symbols on the instrument are legible.</li> <li>▶ If they are dirty, clean them.</li> <li>▶ If illegible, replace them.</li> </ul>	Weekly
Heating chamber	▶ Remove dust and foreign objects using compressed air or a vacuum cleaner.	Monthly

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<b>Component</b>	<b>Action</b>	<b>Frequency</b>
Control panel	▶ Wipe down the display with a damp cloth.	Monthly
Rubber couplings	▶ Replace the rubber couplings.	Yearly

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## 8 Help with faults

### 8.1 Troubleshooting

Problem	Action
Insufficient boiling	<ul style="list-style-type: none"> <li>▶ Make sure that the power supply is connected.</li> <li>▶ Make sure that both heating coils are working properly (glowing).</li> <li>▶ Make sure that the instrument has been preheated for 10 minutes.</li> <li>▶ Make sure that the power regulator is set between 2 - 3.</li> </ul>
Excessive foam formation during hydrolysis	<ul style="list-style-type: none"> <li>▶ Make sure that the power regulator is set between 2 - 3.</li> <li>▶ Add some drops of 4 M HCl.</li> <li>▶ Reduce sample weight.</li> </ul>
Hydrolysate cannot be transferred through the aspiration tube	<ul style="list-style-type: none"> <li>▶ Make sure that the aspiration tube, all rubber couplings and all hoses are connected properly.</li> <li>▶ Make sure that the glass parts are not cracked or broken.</li> <li>▶ Make sure that the hose is not porous.</li> <li>▶ Make sure that the water jet pump or vacuum pump is switched on.</li> <li>▶ Close the stopcocks on unused positions.</li> <li>▶ Close the stopcocks on finished positions to increase the suction capacity on difficult position.</li> <li>▶ Reduce the amount of sample.</li> </ul>
Celite® 545 is washed out during rinsing	<ul style="list-style-type: none"> <li>▶ Make sure to use quartz sand with a grain size of 0.3 - 0.9 mm.</li> <li>▶ Make sure the right amount of quartz sand and Celite® 545 is chosen.</li> </ul>
Glass sample tube with frit blocked	<ul style="list-style-type: none"> <li>▶ Rinse the frit thoroughly to remove any remaining quartz sand and Celite® 545 prior to cleaning in a dishwasher. Please refer to the glass sample tube cleaning guide.</li> <li>▶ Do not sonicate the glass sample tube.</li> <li>▶ Make sure that the quartz sand with grain size of 0.3-0.9 mm is used.</li> <li>▶ Replace glass sample tube.</li> </ul>

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Problem	Action
Breakage hydrolysis vessel	<p data-bbox="898 232 1062 262">Precondition:</p> <ul data-bbox="898 271 1394 624" style="list-style-type: none"><li data-bbox="898 271 1394 376">☑ <b>WARNING! Wear gloves during carrying out the following instructions.</b></li><li data-bbox="898 398 1394 504">▶ Let the temperature of the instrument decrease until it is the same as the ambient temperature.</li><li data-bbox="898 515 1394 544">▶ Remove glass debris.</li><li data-bbox="898 555 1394 624">▶ Wipe the heating chamber with a damp cloth.</li></ul>

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## **9 Taking out of service and disposal**

### **9.1 Disposal**

The operator is responsible for proper disposal of the instrument.

- ▶ When disposing of equipment observe the local regulations and statutory requirements regarding waste disposal.
- ▶ When disposing, observe the disposal regulations of the materials used. Materials used see Chapter 3.5 "Technical data", page 12

### **9.2 Taking out of service**

- ▶ Switch off the instrument and disconnect it from the mains power supply.
- ▶ Remove all cables from the device.

### **9.3 Returning the instrument**

Before returning the instrument, contact the BÜCHI Labortechnik AG Service Department.

<https://www.buchi.com/contact>

## 10 Appendix

### 10.1 Spare parts and accessories

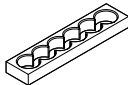
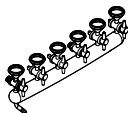
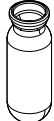
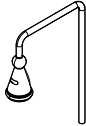
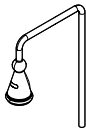



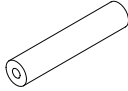
Use only genuine BUCHI consumables and spare parts in order to ensure correct, safe and reliable operation of the system.





#### NOTE

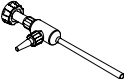

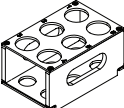
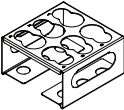
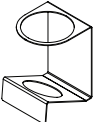
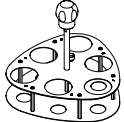
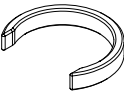
Any modifications of spare parts or assemblies are only allowed with the prior written permission of BUCHI.

#### 10.1.1 Spare parts

	Order no.	Image
Insulation plate	11065169	
Suction tube, cpl.	11064546	
Set of hydrolysis vessels, 2 pcs.	11064547	
Set of aspiration tubes, 2 pcs.	11064548	
Set of aspiration tubes, long, 2 pcs.	11069475	
Glass sample tubes with frit, 6 pcs.	11067497	
Glass sample tubes with frit, long, 6 pcs. The glass sample tubes with 150 mm length fit perfectly into the Universal glass extraction chamber.	11067815	
Set of rinsing funnels, 2pcs.	11067582	
Vacuum hose, 2 m	040459	

	Order no.	Image
Set of upper couplings, FKM, 3 pcs.	11068611	
Set of lower couplings, FKM, 3 pcs.	11068612	

### 10.1.2 Accessories

	Order no.	Image
Water jet pump. Plastic Used when tap water is used to generate vacuum.	002913	
Suction set with pump Vacuum pump V-100, bottle, tubing	11068473	
Holder for glass sample tubes, PTFE	11067220	
Holder for glass sample tubes, stainless steel	11067219	
Weighing support for hydrolysis vessels	11067040	
Hydrolysis vessel carrier	11067492	
Adapter clips for B-411 sample tubes, 4 pcs. These adapters allow the use of glass sample tubes for B-411/ B-811 on combination with the HydrolEx H-506. In addition the rubber couplings of the E-416 / B-411 are needed for the use in the H-506. EPDM (037381) or Viton (044491)	11069239	

### 10.1.3 Consumables

	Order no.
Quartz sand 0.3 - 0.9 mm, 2.5 kg	037689
Celite® 545, 1 kg	11068920
Quartz sand (25 kg)	034925

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