IC equipment

IC equipment: Liquid Handling Station (6.5330.130)

Manual

8.110.8030EN / 2014-03-24

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Although all the information given in this documentation has been checked with great care, errors cannot be entirely excluded. Should you notice any mistakes please send us your comments using the address given above.

Documentation in additional languages can be found on *http://documents.metrohm.com*.

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1 Introduction

1.1 Description

The IC equipment: Liquid Handling Station is used for rinsing the sample needle after sample aspiration.

The sample needle is rinsed with ultrapure water in the rinsing unit of the Liquid Handling Station (6.2841.120) after each sample aspiration.

The IC equipment: Liquid Handling Station can be mounted on any Sample Processor equipped with a Swing Head and a peristaltic pump.

A trap column is installed between the supply bottle and the peristaltic pump to ensure that the rinsing solution is free of ionic contamination.

1.2 About the documentation

This manual describes the installation of the IC equipment: Liquid Handling Station and the connection of the capillary connections between the supply bottle, the trap column, the peristaltic pump and the Liquid Handling Station.

CAUTION

Please read through this documentation carefully before putting the equipment into operation. The documentation contains information and warnings which the user must follow in order to ensure safe operation of the equipment.

Additional documentation

Topic	Document
Mounting the Liquid Handling Station on the Sample Processor	Manual for the Liquid Handling Station
Installing the peristaltic pump and the respective tubing Care and maintenance of the pump tubing	Manual for the Sample Processor

1.2.1 Symbols and conventions

The following symbols and formatting may appear in this documentation:

*(5-**12**)*	**Cross-reference to figure legend** The first number refers to the figure number, the second to the instrument part in the figure.
1	**Instruction step** Carry out these steps in the sequence shown.
Method	**Dialog text**, **parameter** in the software
File ▶ New	Menu or menu item
[Next]	**Button** or **key**
	**WARNING** This symbol draws attention to a possible life-threatening hazard or risk of injury.
	**WARNING** This symbol draws attention to a possible hazard due to electrical current.
	**WARNING** This symbol draws attention to a possible hazard due to heat or hot instrument parts.
	**WARNING** This symbol draws attention to a possible biological hazard.
	**CAUTION** This symbol draws attention to possible damage to instruments or instrument parts.
	**NOTE** This symbol highlights additional information and tips.

2 Overview

2.1 Parts of the IC equipment: Liquid Handling Station

Figure 1 IC equipment: Liquid Handling Station – Parts

2.2 Parts of the Liquid Handling Station

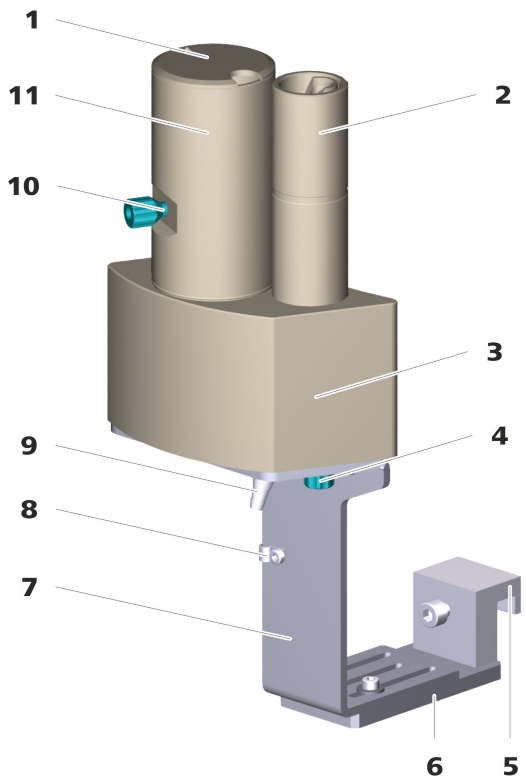


Figure 2 Liquid Handling Station – Parts

1	**Cover** For the mixing vessel.	**2**	**Rinsing unit**
3	**Main body** With magnetic stirrer dummy.	**4**	**Rinsing unit inlet** Sealed with threaded stopper.
5	**Clamping fastener**	**6**	**Base plate**
7	**Support bracket**	**8**	**Cable clip**
9	**Waste connector**	**10**	**Mixing vessel outlet** Sealed with threaded stopper.
11	**Mixing vessel**		

3 Installation

3.1 Installing the Liquid Handling Station

The Liquid Handling Station forms part of the IC equipment: Liquid Handling Station.

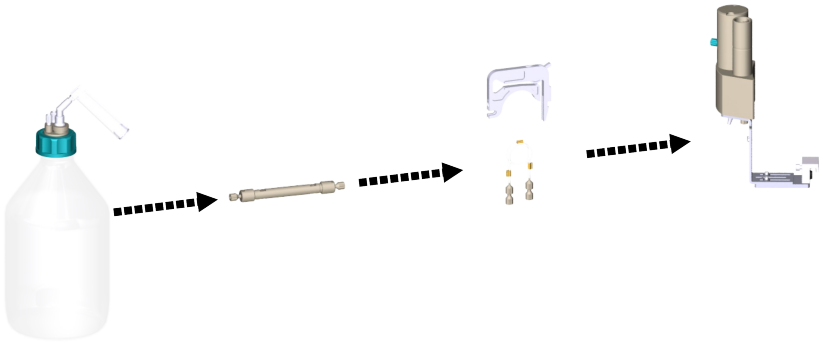
1 **Installing the Liquid Handling Station**

Install the Liquid Handling Station on the left side of the Sample Processor (*see manual for the Liquid Handling Station*).

3.2 Installing the rinsing solution flow path

The Sample Processor's peristaltic pump transfers ultrapure water to the Liquid Handling Station's rinsing unit. In the rinsing unit, the Sample Processor needle is cleaned after each sample aspiration.

We recommend that you install the Metrosep I Trap 1 - 100/4.0 (6.1014.200) column between the supply bottle and the peristaltic pump. This trap column removes ionic contamination from the ultrapure water.



Preparing the supply bottle

Required accessories

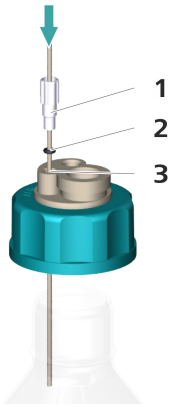
- Clear glass bottle (6.1608.070)
- PEEK capillary (6.1831.180)
- Bottle cap (6.1602.160) with O-ring, M6 tubing nipple and M8 stopper
- Adapter for adsorber tube (6.1624.000)
- Adsorber tube (6.1619.000)
- Capillary cutter (6.2621.080)

1 ▪ Fill the clear glass bottle with ultrapure water.

2

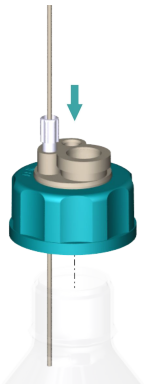
- Cut off a piece of the capillary that is approx. 50 cm long using the capillary cutter.

3 **Threading the capillary through the bottle holder**



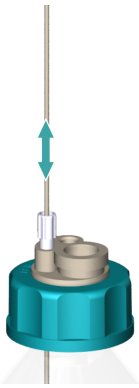
- Push one end of the capillary (50 cm) through the M6 tubing nipple (**1**), the O-ring (**2**) and the M6 opening of the bottle cap (**3**) and into the bottle.
- Loosely secure the capillary in place using the tubing nipple.

4 **Mounting the bottle cap to the supply bottle**



- Screw the bottle cap onto the supply bottle.

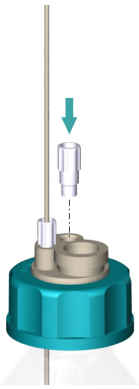
5 Setting the capillary to the correct length



- Push the capillary far enough into the bottle that it reaches the bottom of the bottle.
- Tighten the tubing nipple.

The capillary is secured.

6 Inserting the stopper



- Screw the M8 stopper into the M8 opening of the bottle cap.

7 Filling the adsorber tube

Fill the adsorber tube as follows:

- some cotton
- CO_2 adsorber material
- some cotton

Seal the adsorber tube with the stopper.

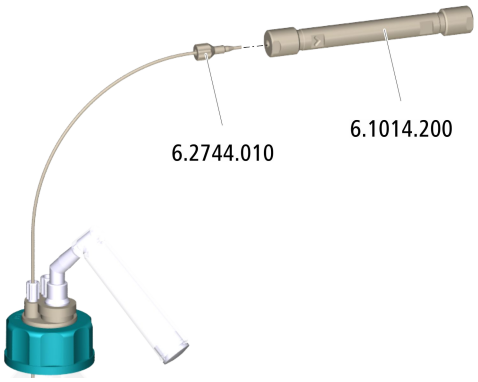
8 Inserting the adsorber tube

- Insert the adapter into the SGJ opening of the bottle cap.
- Screw the adsorber tube into the upper opening of the adapter.

Installing the capillary between the supply bottle and the trap column

Required accessories

- PEEK capillary (6.1831.180)
- Metrosep I Trap 1 - 100/4.0 (6.1014.200)
- Pressure screw (6.2744.010)



1 Removing the stoppers

- Remove the stoppers from the trap column's inlet and outlet. Keep the stoppers.

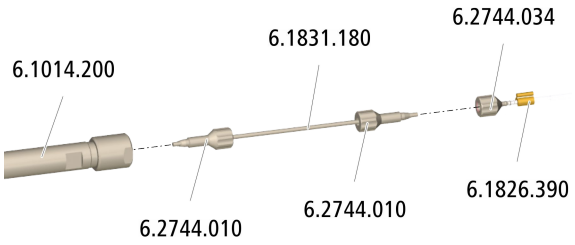
2 Installing the capillary to the column inlet

- Tighten the other end of the installed capillary to the trap column inlet using a pressure screw.

Installing the capillary between the trap column and the peristaltic pump

Required accessories

- PEEK capillary (6.1831.180)
- Pressure screw (6.2744.010)
- Pump tubing with yellow stoppers (6.1823.390)
- Coupling olive/UNF 10/32 (6.2744.034)
- Capillary cutter (6.2621.080)



1 Preparing the pump tubing

- Attach a coupling olive/UNF 10/32 (6.2744.034) to each end of the pump tubing.
  (See the chapter "Installing the peristaltic pump" in the manual for the Sample Processor.)

2 Cutting the capillary to size

- Cut off a piece of approx. 70 cm from the long capillary using the capillary cutter.

3 Mounting the capillary

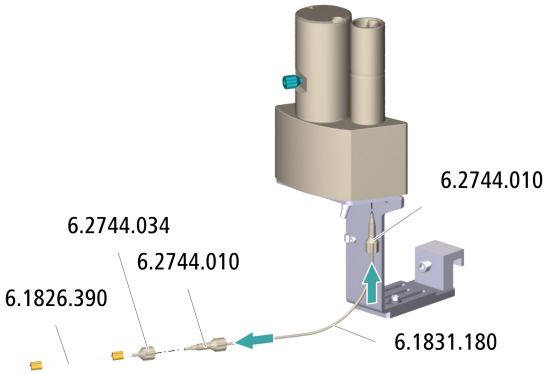
- Tighten one end of the capillary to the trap column outlet using a pressure screw.
- Tighten the other end of the capillary to the pump tubing inlet using a pressure screw.

Installing the capillary between the peristaltic pump and the Liquid Handling Station

Required accessories

- PEEK capillary (6.1831.180)
- Pressure screw (6.2744.010)
- Pump tubing with yellow stoppers (6.1823.390)
- Liquid Handling Station (6.2841.120)

- Capillary cutter (6.2621.080)



1 Cutting the capillary to size

- Cut off a piece of approx. 60 cm from the long capillary using the capillary cutter.

2 Mounting the capillary

- Tighten one end of the capillary to the pump tubing outlet using a pressure screw (6.2744.010).
- Tighten the other end of the capillary to the rinsing unit inlet *(2-**4**)* using a pressure screw (6.2744.010).

Completing the installation

1 Mounting the drainage tubing

Use the PVC tubing from the accessories for the Liquid Handling Station as drainage tubing.

- Push one end of the PVC tubing over the waste connector *(2-**9**)* of the rinsing unit.
- Guide the other end of the PVC tubing to the waste container.

2 Installing the peristaltic pump

- Insert the pump tubing in the tubing cartridge (*see manual for the Sample Processor*).
- Insert the tubing cartridge in the cartridge holder (*see manual for the Sample Processor*).

3 Placing the supply bottle

- Place the supply bottle next to the Sample Processor.

4 Operation and maintenance

4.1 Replacing the pump tubing

Pieces of pump tubing inserted into the peristaltic pump are consumables with a limited service life.

Pieces of pump tubing with 3 stoppers are tensioned in the tubing cartridge so that they end up positioned between two stoppers. This results in two possible positions for the tubing cartridge. Once the pump tubing exhibits significant signs of wear, it can be tensioned a second time in the other respective position.

Maintenance interval

Replace the pump tubing every 2 months.

Replace the pump tubing every 4 weeks if the peristaltic pump is being used continuously.

5 Technical specifications

5.1 Liquid Handling Station (6.2841.120)

Information on the technical specifications of the Liquid Handling Station can be found in the manual for the Liquid Handling Station.

6 Accessories

Up-to-date information on the scope of delivery and optional accessories for your instrument can be found on the Internet.

NOTE

When you receive your new instrument, we recommend downloading the accessories list from the Internet, printing it out and keeping it together with the manual for reference purposes.

Instruments currently sold

If you do not know the article number of your instrument, proceed as follows:

Downloading the accessories list

1 Go to the Metrohm website *http://www.metrohm.com/com*.

2 Click on  .

The **Search** webpage will be displayed.

3 Enter a search term relating to the instrument into the search field and click on **Find**.

The search results will be displayed.

4 In the search results, select the **Devices** tab (if it is not already selected) and then click on the Metrohm article number of the required instrument (e.g. 2.852.0050).

The page with information pertaining to the searched article is displayed.

5 Select the **Parts** tab.

The complete list of accessories with the scope of delivery and the optional accessories will be displayed.

6 Click on  .

The **Partslists** webpage will be displayed.

7 Select the desired output language.

8 With the article number entered, click on the command **Generate PDF**.

The PDF file with the accessories data will be created in the language selected.

Direct access for all instruments

If you are unable to find your instrument using the search as described above, this may be due to the instrument not being sold anymore. Using the article number, you can download accessories lists for all instruments as follows:

Downloading the accessories list

1 Type *http://partslists.metrohm.com* into your Internet browser.

The **Partslists** webpage will be displayed.

2 Select the desired output language.

3 Enter the article number and click on the **Generate PDF** command.

The PDF file with the accessories data will be created in the language selected.

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