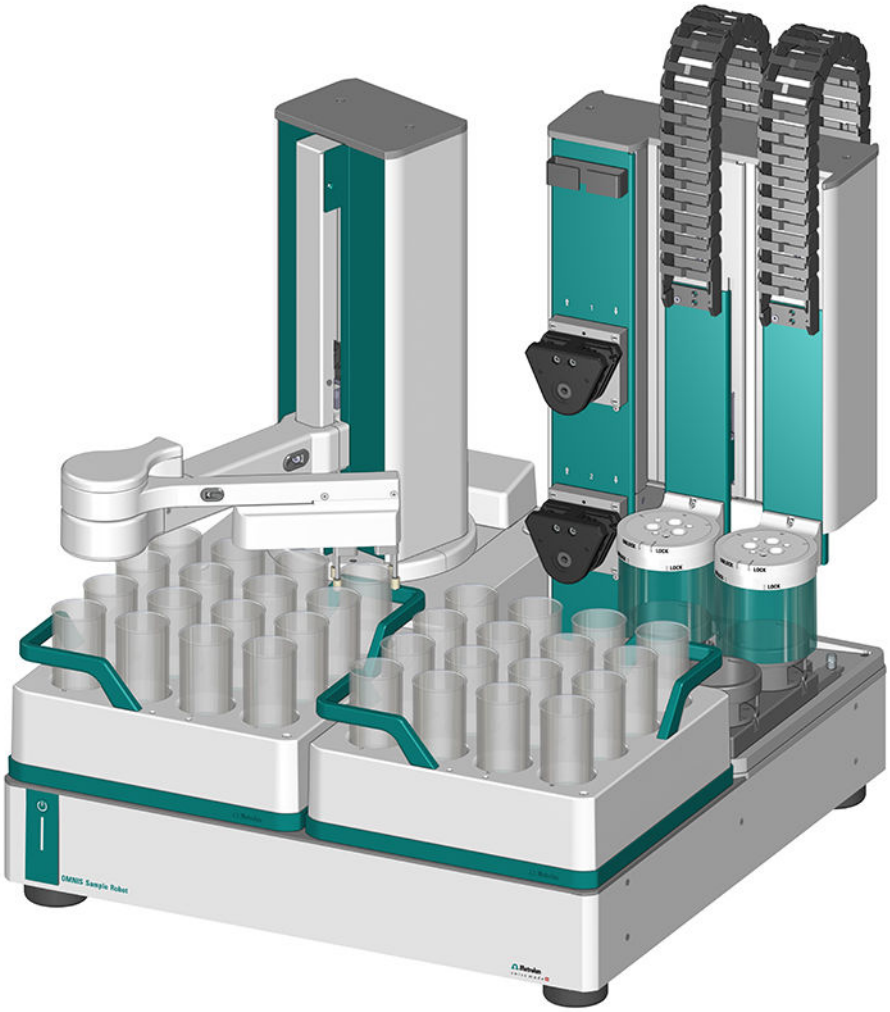
OMNIS Sample Robot WSM



2.101x.0120

Product manual

8.1012.8003EN / v1 / 2024-10-03

Metrohm

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OMNIS Sample Robot WSM

Product manual

8.1012.8003EN / v1 /
2024-10-03

Technical Communication
Metrohm AG
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This documentation is an original document.

This documentation has been prepared with great care. However, errors can never be entirely ruled out. Please send comments regarding possible errors to the address above.

Disclaimer

Deficiencies arising from circumstances that are not the responsibility of Metrohm, such as improper storage or improper use, etc., are expressly excluded from the warranty. Unauthorized modifications to the product (e.g., conversions or attachments) exclude any liability on the part of the manufacturer for resulting damage and its consequences. Instructions and notes in the Metrohm product documentation must be strictly followed. Otherwise, Metrohm's liability is excluded.

Table of contents

1 Overview

1.1 Product description

The OMNIS Sample Robot WSM is a modular system for automated sample changes in titrations. The modular construction makes it possible to configure the system in accordance with the area of application.

1.2 Upgrade options

The following upgrades are available for the product:

Table 1 Product versions

Article number	Designation	Version feature
6.0580.0540	Upgrade Pick&Place WSM	Upgrade kit to extend the workstation module with an additional Pick&Place module
6.0580.0560	Upgrade stirrer WSM	Upgrade kit to equip the workstation module with a magnetic stirrer
6.0580.0570	Upgrade peristaltic pump module WSM	Upgrade kit to equip the workstation module with 2 additional peristaltic pumps

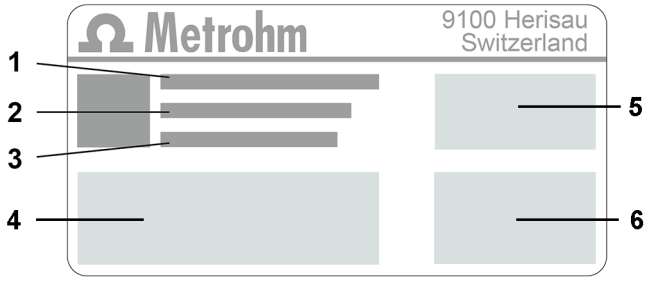
1.3 OMNIS Main Module WSM – Product versions

The product is available in the following versions:

Table 2 Product versions

Article number	Designation	Version feature
2.1010.0120	OMNIS Main Module S – WSM	S version
2.1011.0120	OMNIS Main Module M – WSM	M version
2.1012.0120	OMNIS Main Module L – WSM	L version

The article number and serial number for identification of the product can be found on the type label:



1	**(01) = Article number in accordance with GS1 standard**	**2**	**(21) = Serial number**
3	**(240) = Metrohm article number**	**4**	**Certification**
5	**Certification**	**6**	**Technical specifications**

1.4 Workstation module – Product versions

The product is available in the following versions:

Table 3 Product versions

Article number	Designation	Version feature
2.1024.0010	1T/0P	Version without peristaltic pumps, 1 Pick&Place module
2.1024.0020	1T/2P	Version with peristaltic pumps (2-channel), 1 Pick&Place module
2.1024.0030	2T/4P	Version with peristaltic pumps (4-channel), 2 Pick&Place modules

1.5 About the documentation

Possible depictions in the documentation:

Depiction	Meaning
*(5-**12**)*	Cross-reference to figure legend (Figure number - ***Element in the figure***)
1	Instruction step
Method	Parameters, menu items, tabs, and dialogs
File ▶ New	Menu path
[Continue]	Button or key

	Supplementary information to the descriptive text
	Note In graphics, orange arrows or frames indicate the reference to the descriptive text. The relevant elements may also be colored orange.
	Movement In graphics, blue arrows indicate the movement direction. The elements to be moved may also be colored blue.

1.6 Further information

Additional information on the product is available on the following pages:

- Metrohm website *https://www.metrohm.com* – Documents as PDF, overview of product family, information on applications and details of accessories.
- Metrohm Knowledge Base *https://guide.metrohm.com* – Thematically filtered individual content, videos, information on OMNIS Software.

1.7 Displaying accessories

Up-to-date information on the scope of delivery and on optional accessories can be found on the Metrohm website.

1 Searching for a product on the website

- Go to *https://www.metrohm.com*.
- Click on 🔍.
- Enter the article number of the product (e.g. **2.1001.0010**) into the search field and press **[Enter]**.

The search result is displayed.

2 Displaying product information

- To display the products matching the search term, click on **Product models**.
- Click on the desired product.

Detailed information regarding the product is displayed.

3 Displaying accessories and downloading the accessories list

- To display the accessories, scroll down to **Accessories and more**.
  - The **scope of delivery** is displayed.
  - Click on **[Optional parts]** for the optional accessories.
- To download the accessories list, click on **[Download accessories PDF]** under **Accessories and more**.

Metrohm recommends keeping the accessories list for reference purposes.

2 Safety

2.1 Intended use

Metrohm products are used for the analysis and handling of chemicals.

Usage therefore requires the user to have basic knowledge and experience in handling chemicals. Knowledge regarding the application of fire prevention measures prescribed for laboratories is also mandatory.

Adherence to this technical documentation and compliance with the maintenance specifications make up an important part of intended use.

Any utilization in excess of, or deviating from, the intended use is regarded as misuse.

Specifications regarding the operating values and limit values of individual products are contained in the "Technical specifications" section, if relevant.

Exceeding and/or not observing the mentioned limit values during operation puts people and components at risk. The manufacturer assumes no liability for damage due to non-observance of these limit values.

The EU declaration of conformity loses its validity as soon as modifications are carried out on the products and/or the components.

2.2 Responsibility of the operator

The operator must ensure that basic regulations on occupational safety and accident prevention in chemical laboratories are observed. The operator has the following responsibilities:

- Instruct personnel in the safe handling of the product.
- Train personnel in the use of the product according to the user documentation (e.g. install, operate, clean, eliminate faults).
- Train staff on basic occupational safety and accident prevention regulations.
- Provide personal protective equipment (e.g. protective glasses, gloves).
- Provide suitable tools and equipment to carry out the work safely.

The product may be used only when it is in perfect condition. The following measures are required to ensure the safe operation of the product:

- Check the condition of the product before use.
- Remedy defects and malfunctions immediately.
- Maintain and clean the product regularly.

2.3 Requirements for operating personnel

Only qualified personnel may operate the product. Qualified personnel are persons who meet the following requirements:

- Basic regulations on occupational safety and accident prevention for chemical laboratories are known and complied with.
- Knowledge of handling hazardous chemicals is present. Personnel have the ability to recognize and avoid potential dangers.
- Knowledge regarding the application of fire prevention measures for laboratories is available.
- Safety-relevant information is communicated and understood. The personnel can operate the product safely.
- The user documentation has been read and understood. The personnel operate the product according to the instructions in the user documentation.

2.4 Safety instructions

2.4.1 Danger from electrical potential

Contact with electrical potential can cause serious injuries or death. To avoid danger from electrical potential, observe the following:

- Operate the product only if it is in perfect condition. The housing must also be intact.
- Only use the product with the covers fitted. If covers are damaged or missing, disconnect the product from the energy supply and contact the regional Metrohm service representative.
- Protect live components (e.g. power supply unit, power cord, connection sockets) against moisture.
- Always have maintenance work and repairs on electrical components carried out by a regional Metrohm service representative.
- Disconnect the product from the energy supply immediately if at least one of the following cases occurs:
  - The housing is damaged or open.
  - Live parts are damaged.
  - Moisture penetrates.

2.4.2 Danger from biological and chemical hazardous substances

Contact with biological hazardous substances may cause poisoning from toxins or infections from microorganisms. Contact with aggressive chemical substances may cause poisoning or chemical burns. To avoid danger from biological or chemical hazardous substances, observe the following:

- Label the product according to regulations if it is used for substances that have a potential for chemical hazards and are generally subject to the Hazardous Substances Ordinance.
- Wear personal protective equipment (e.g. protective glasses, gloves).
- Use exhaust equipment when working with vaporizing hazardous substances.
- Dispose of hazardous substances in accordance with regulations.
- Clean and disinfect contaminated surfaces.
- Only use detergents that do not cause any unwanted side reactions with the materials to be cleaned.
- Dispose of chemically contaminated materials (e.g. cleaning material) in accordance with regulations.
- Proceed as follows in case of a return shipment to Metrohm AG or a regional Metrohm representative:
  - Decontaminate the product or product component.
  - Remove the labeling for hazardous substances.
  - Create a declaration of decontamination and enclose it with the product.

2.4.3 Danger from highly flammable substances

Using highly flammable substances or gases may cause fires or explosions. To avoid danger from highly flammable substances, observe the following:

- Avoid ignition sources.
- Use protective grounding.
- Use exhaust equipment.

2.4.4 Danger from leaking liquids

Leaking liquids may cause injuries and may damage the product. To avoid danger from leaking liquids, observe the following:

- Check the product and its accessories for leakages and loose connections.
- Replace leaking parts and connecting elements without delay.
- Tighten loose connecting elements.
- Do not loosen tubing connections under pressure.
- Do not remove aspiration tubing under pressure.
- Carefully pull the ends of the tubing out of the containers.
- Carefully let liquids from tubing drain into suitable containers.
- Insert the buret tips completely into the containers.
- Remove and dispose of leaked liquids in accordance with regulations.
- If you suspect that liquid has penetrated the instrument, disconnect the instrument from the energy supply. Then have the instrument checked by a regional Metrohm service representative.

2.4.5 Danger during transport of the product

Chemical or biological substances may be spilled during the transport of the product. Parts of the product may fall down or may be damaged. There is a risk of injury from chemical or biological substances and pieces of broken glass. To ensure safe transport, observe the following:

- Remove loose parts (e.g. sample racks, sample vessels, bottles) before transport.
- Remove liquids.
- Lift and transport the product with both hands on the base plate.
- Lift and transport heavy products only according to instructions.

2.4.6 Dangers from hot surfaces and liquids

Contact with hot surfaces or hot liquids may cause burns. To avoid the risk of injury, observe the following:

- Install and use the protective devices enclosed with the product.
- Allow hot surfaces to cool down before working on the product.
- Wear heat-resistant protective gloves.
- Clean up spilled liquids and solids immediately.

2.4.7 Dangers due to automated motion sequences

Product parts that move automatically (e.g. robot arm) can cause injuries due to crushing or clamping. To avoid the risk of injury, observe the following:

- Do not reach into the working area while work processes are running.
- Install the protective devices enclosed with the product according to instructions and operate the product only with these protective devices.
- Do not bypass the installed protective devices.

2.5 Design of warning messages

The present documentation uses warning messages as follows.

Structure

1. Severity of the danger (signal word)
2. Type and source of danger
3. Consequences of disregarding the danger
4. Measures for averting the danger

Hazard levels

Signal color and signal word designate the hazard level.

DANGER

Indicates an immediate danger. It will result in serious injuries or death if not avoided.

WARNING

Indicates a potential danger. Failure to avoid the danger may result in death or serious injury.

CAUTION

Indicates a potential danger. If not avoided, it may result in light or minor injuries.

NOTICE

Indicates a potentially damaging situation. If not avoided, the product or something in the surrounding area could be damaged.

2.6 Meaning of warning signs

Warning signs on the product or in the documentation indicate potential dangers or draw attention to certain behaviors in order to avoid accidents or damage.

Depending on the application purpose, the operating company attaches additional warning signs to the product. The corresponding instructions of the operator must be followed.

Table 4 Warning signs according to ISO 7010 (examples)

Warning signs / meaning		Warning signs / meaning	
	General warning sign		Warning of hot surface
	Warning of sharp object (cut/ puncture)		Warning of hand injuries (crushing)
	Warning of electrical voltage		Warning of corrosive substances
	Warning of optical radiation		Warning of a laser beam
	Warning of flammable materials		Warning of biological hazard
	Warning of toxic materials		

3 Functional description

3.1 OMNIS Sample Robot WSM – Overview

The OMNIS Sample Robot WSM is a modular system for automated sample changes in titrations. The modular construction makes it possible to configure the system in accordance with the area of application.

The system consists of the following components:

- OMNIS Main Module WSM
- Workstation module

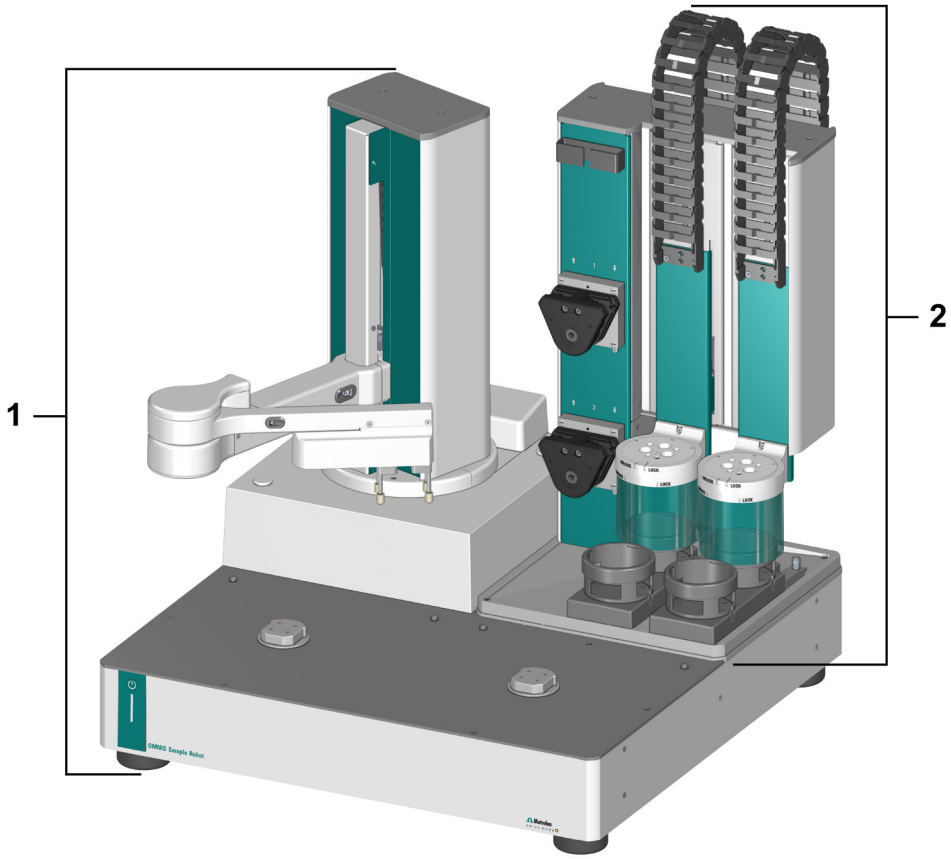


Figure 1 OMNIS Sample Robot S – WSM

1	**OMNIS Main Module S – WSM**	**2**	**Workstation module**

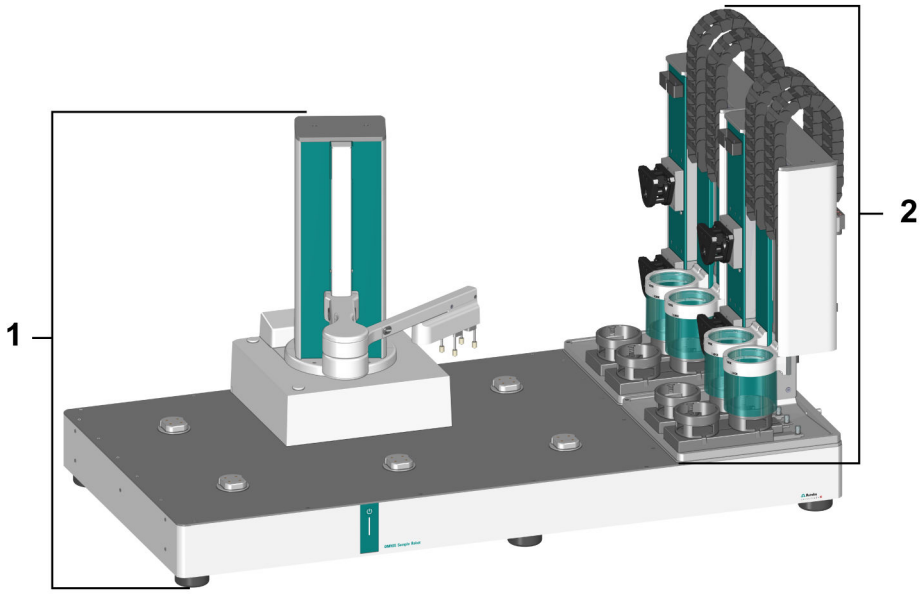


Figure 2 OMNIS Sample Robot M – WSM

1 OMNIS Main Module M – WSM	**2 Workstation module**

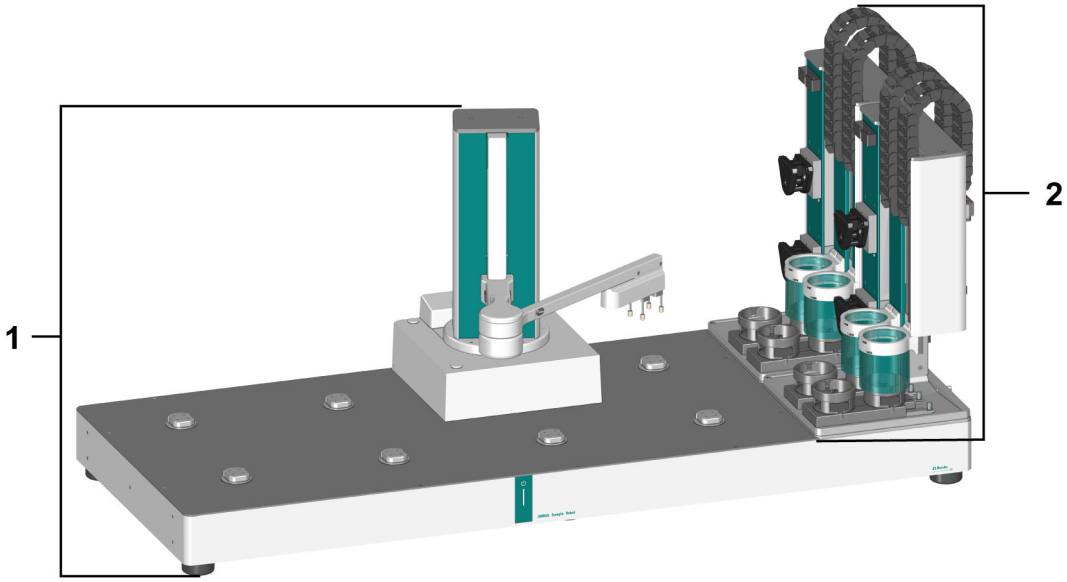


Figure 3 OMNIS Sample Robot L – WSM

1 OMNIS Main Module L – WSM	**2 Workstation module**

3.1.1 OMNIS Main Module WSM – Overview

The OMNIS Main Module WSM supplies all of the attached modules in the OMNIS sample robot system with electricity. The control hardware is integrated in the interior of the OMNIS Main Module WSM.

The main lift *(4-**1**)* with the robot arm is located on the OMNIS Main Module WSM. The robot arm consists of the lift arm *(4-**3**)*, the arm joint *(4-**4**)*, and the gripper arm *(4-**5**)*. The gripper fingers *(4-**7**)* are mounted on the gripper *(4-**6**)*.

The robot arm on the main lift is moved with the arm holder *(4-**2**)*. The robot arm transports the sample beakers to the workstation and back to the sample rack.

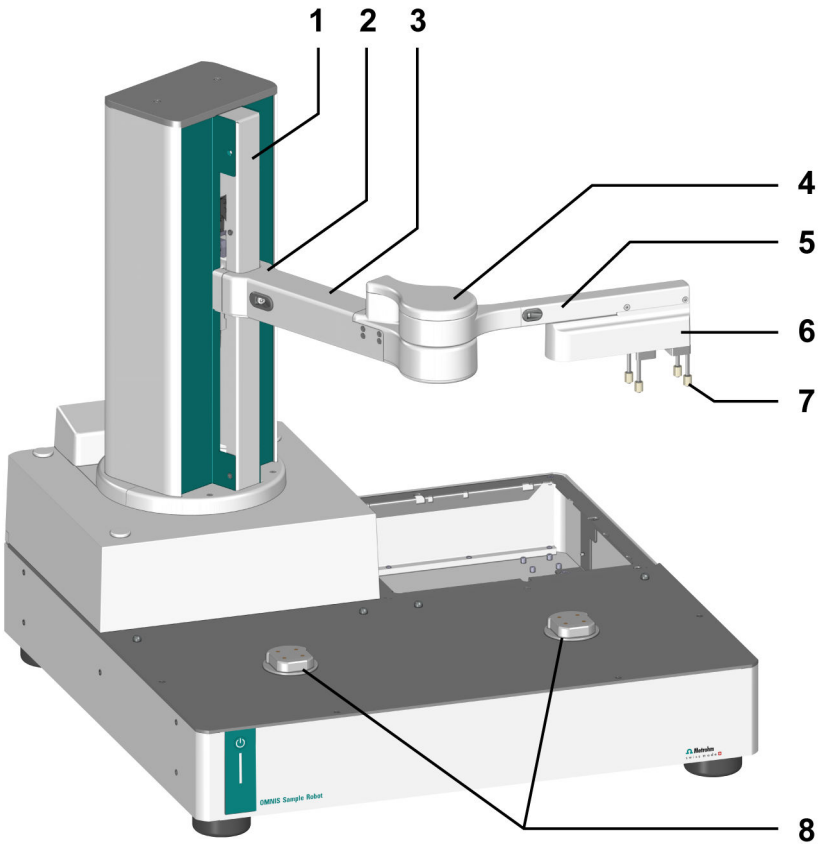


Figure 4 OMNIS Main Module WSM – General overview

1	**Main lift**	**2**	**Arm holder**
3	**Lift arm**	**4**	**Arm joint**
5	**Gripper arm**	**6**	**Gripper**
7	**Gripper fingers**	**8**	**Rack holder**

3.1.2 Robot arm – Movement capacity

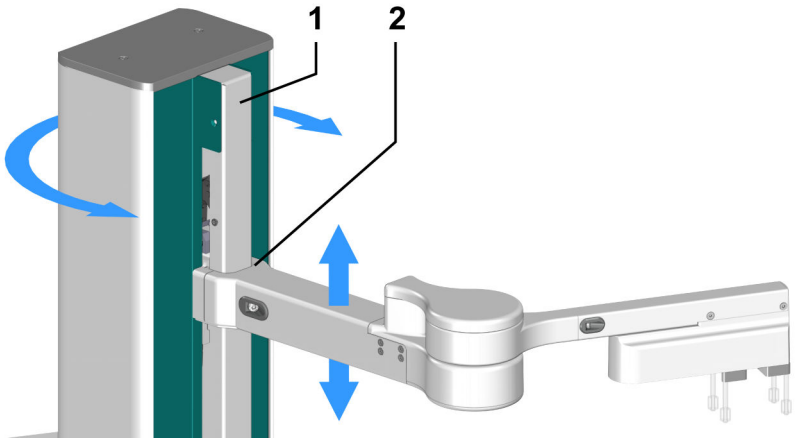


Figure 5 Main lift

1	**Main lift**	**2**	**Arm holder**

The main lift *(5-**1**)* can be rotated to the left and right. The arm holder *(5-**2**)* on the main lift moves the robot arm up and down.

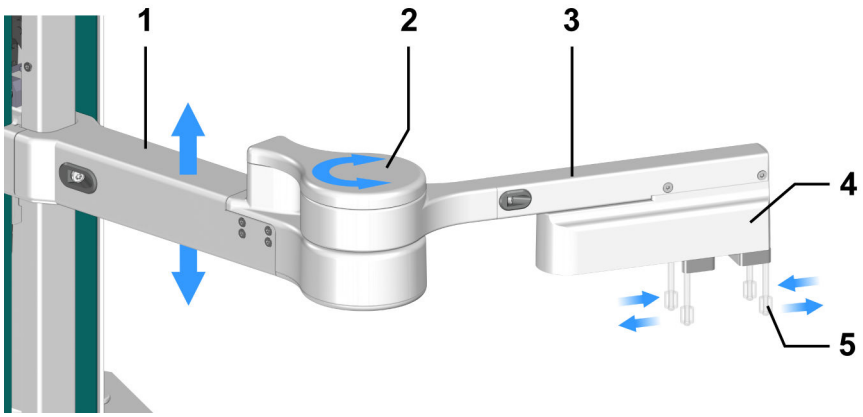


Figure 6 Robot arm

1	**Lift arm**	**2**	**Arm joint**
3	**Gripper arm**	**4**	**Gripper**
5	**Gripper fingers**		

The arm joint *(6-**2**)* is used to rotate the gripper arm *(6-**3**)* to the left and right. The gripper *(6-**4**)* opens and closes the gripper fingers *(6-**5**)* in order to grasp and hold sample vessels.

3.1.3 Workstation module – Overview

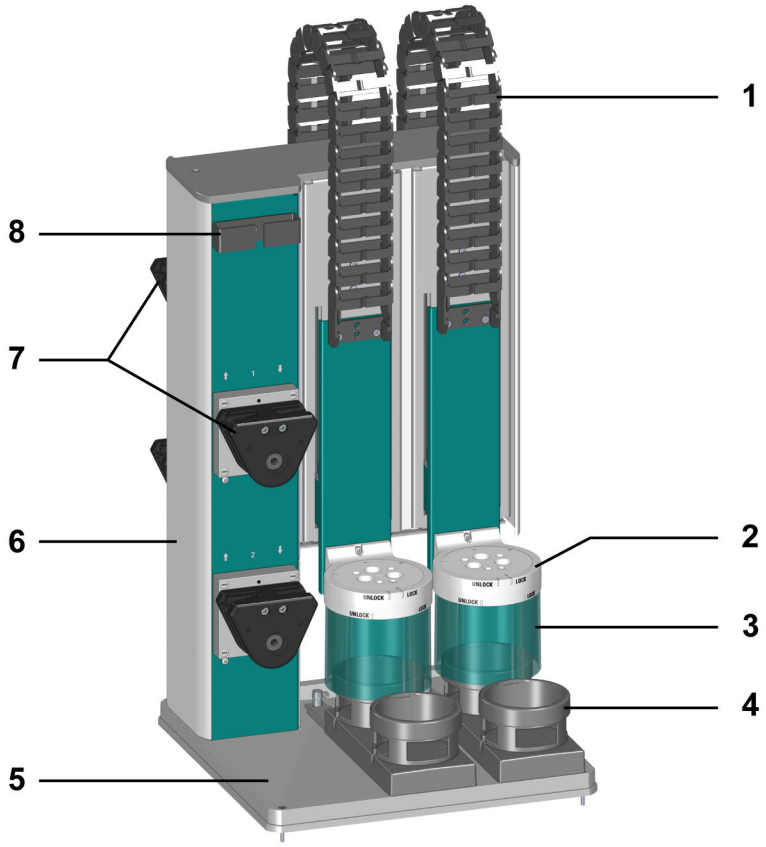


Figure 7 Front – Workstation module

1	**Guide chain**	**2**	**Titration head holder**
3	**Safety shield**	**4**	**Slide**
5	**Collection tray**	**6**	**Lift tower**
7	**Peristaltic pumps**	**8**	**Tubing organizer**

Slide

The slide *(7-**4**)* positions the sample beaker under the titration head holder.

2 beaker holders are present on the slide:

- The front beaker holder is used for the sample beaker.

- The back beaker holder is used for the storage beaker. The storage beaker can be used in different ways:
  - For storing the sensor in a storage solution in the end of the determination series to prevent the sensor from drying out.
  - For cleaning the sensor between the determinations (while the sample beaker is moved back to its position on the sample rack).
  - As titration station, after an aliquot of the sample has been accurately pipetted or transferred from the sample beaker into the storage beaker. (During the determination of the sample, the sample beaker can already be moved back to its position in the sample rack.)

At both slide positions (front and rear), the titration head holder with the lift tower *(7-**6**)* can be moved downwards so that the safety shield *(7-**3**)* encases the sample beaker.

Titration head holder

A titration head that fits the sample beaker can be inserted in the titration head holder *(7-**2**)*. The titration head contains sensors, dosing tips, cleaning accessories, and occasionally a rod stirrer or homogenizer.

Peristaltic pumps

The workstation module is a component with 0, 2 or 4 peristaltic pumps *(7-**7**)*.

- In the case of the two-way version, the pumps are mounted on the front only and numbered 1 and 2.
- In the case of the four-way version, 2 additional pumps are mounted at the rear *(see figure 8, page 16)* and numbered 3 and 4.

2 peristaltic pumps are assigned to each workstation in the OMNIS Sample Robot WSM: 1 rinsing pump and 1 aspiration pump.

- The upper peristaltic pump (numbered 1 or 3) is used for rinsing off the sensors with solvent after each use. The solvent is aspirated from the rinsing canister. If required, these pumps can also be used to dilute a sample with solvent or to bring it into solution prior to an analysis.
- The lower peristaltic pump (numbered 2 or 4) is used for aspirating the solution from the sample beaker after titration. The aspirated solution is routed afterwards to the waste canister.

The pump tubing in the interior connects the inlet and the outlet of the peristaltic pump. This pump tubing is pinched off by 4 rollers. Media are aspirated in and out by the squeezing of the pump tubing and the volume displacement that results from it.

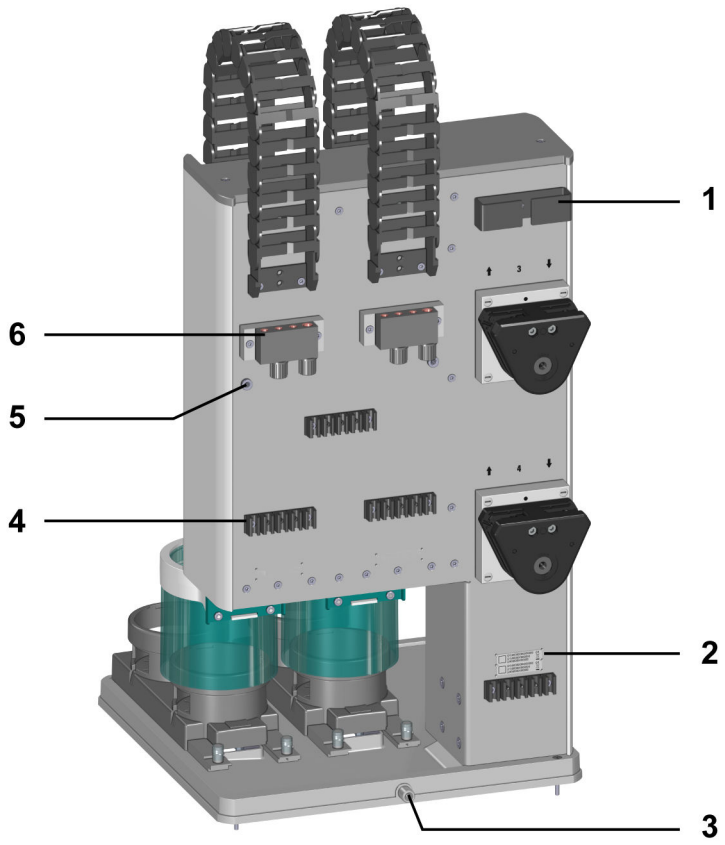


Figure 8 Rear – Workstation module

1	**Tubing organizer**	**2**	**Type label**
3	**Drain nozzle**	**4**	**Tubing organizer**
5	**Grounding socket**	**6**	**Distributor**

The distributor is located at the rear *(8-**6**)*. This is used to connect the rinsing tubing and aspiration tubing.

A tubing with a tubing adapter is connected to the drain nozzle *(8-**3**)*. This tubing will route any liquid that escapes via the drain channel into the waste canister. In case of an error, this protects the workstation module from damage.

The grounding socket *(8-**5**)* is used to ground the buret tip or a Pt rod that is immersed in solution. The tubing coupling (6.1808.030) is necessary for connecting the buret tip.

Option for working with covered sample beakers

To protect samples, e.g. from environmental influences, Dis-Cover lids can be used to close the sample beakers.

Figure 9 Sample beaker lids

1 **KF Dis-Cover lid**
With lid seal

2 **Dis-Cover lid**

The standard lid seals were designed for aqueous applications and Karl Fischer titrations. If more aggressive solvents such as chlorobenzene or glacial acetic acid are used, then Metrohm recommends using the sample beaker lids (Dis-Cover lids) without lid seals .

Table 5 Available sample beaker lids

Article number	Designation	Article quantity
6.02710.000	KF Dis-Cover lid for OMNIS 75 mL sample beaker	25 pieces
6.02710.010	KF Dis-Cover lid for OMNIS 120 mL sample beaker	16 pieces
6.02710.030	Dis-Cover lids for OMNIS 75 mL sample beakers	25 pieces
6.02710.040	Dis-Cover lids for OMNIS 120 mL sample beakers	16 pieces
6.02710.050	Dis-Cover lids for OMNIS 250 mL sample beakers	9 pieces

Table 6 Available replacement seals

Article number	Designation	Article quantity
6.05700.160	Consumable Kit seals for the 6.02710.000 KF Dis-Cover lid	25 pieces
6.05700.170	Consumable Kit seals for the 6.02710.010 KF Dis-Cover lid	16 pieces

Use only KF Dis-Cover lids with the corresponding lid seals.

Depending on the product version of the sample robot, different lid trays are available for placing the lids during the analysis which provide space for 2 to 4 lids.

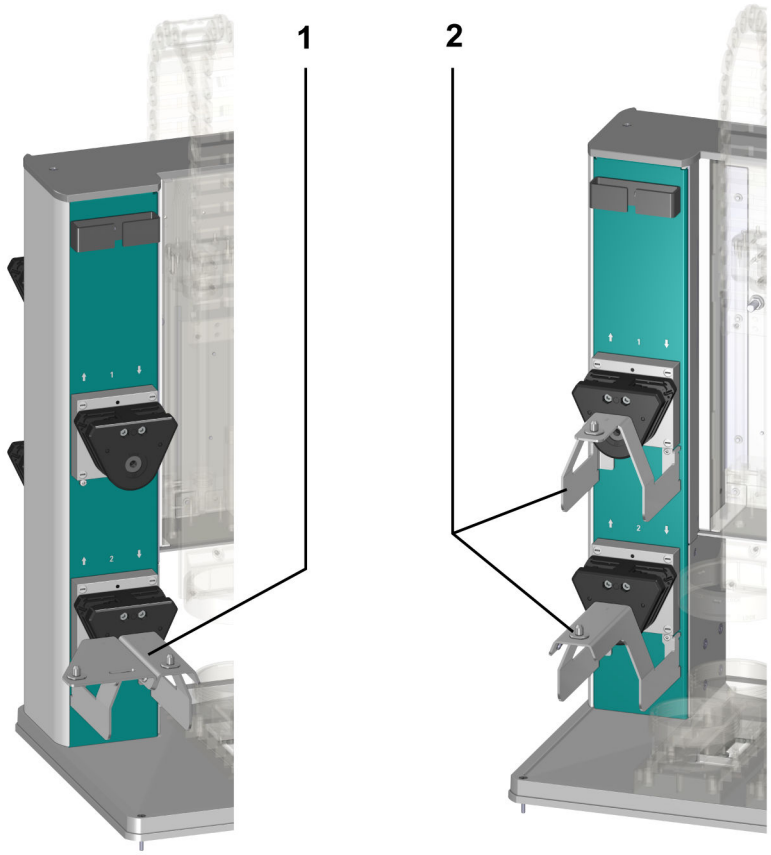


Figure 10 Lid trays

1 Lid tray for OMNIS Sample Robot S WSM

2 Lid trays for OMNIS Sample Robot M/L WSM

Table 7 Available lid trays

Article number	Designation
6.02007.010	Lid tray for OMNIS Sample Robot S
6.02007.020	Lid trays for OMNIS Sample Robot M/L
6.05800.070	Lid tray upgrade for OMNIS Sample Robot S to M/L

Option for working with a homogenizer (Polytron PT 1300 D)

A homogenizer (Polytron PT 1300 D) can be inserted in the titration head for homogenization of the sample.

3.1.4 OMNIS sample rack – Overview

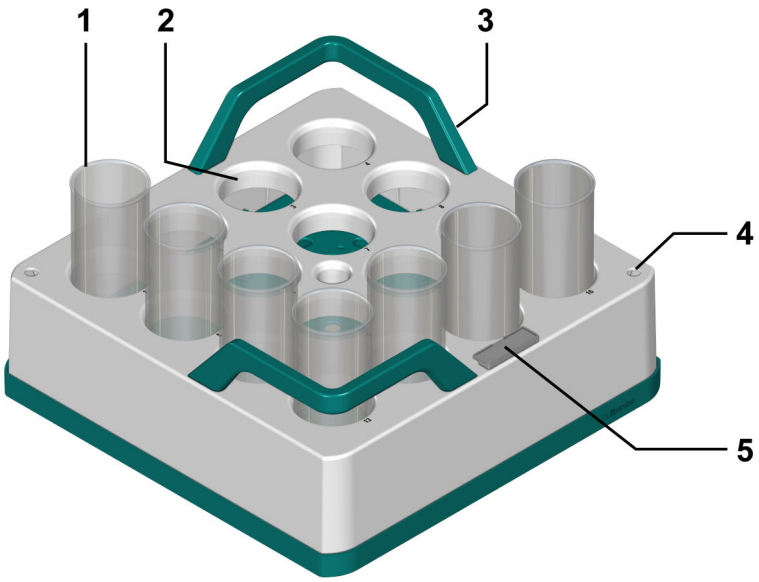


Figure 11 OMNIS sample rack – Overview

1	**Sample vessels**	**2**	**Sample position**
3	**Transport handles**	**4**	**Spout hole**
5	**Label holder**		

The sample vessels *(11-**1**)* are placed in sample positions *(11-**2**)* in the OMNIS sample rack.

The transport handles *(11-**3**)* allow for the OMNIS sample rack to be transported by hand so that it can be set down on or removed from the rack holder of the rack base. Several empty OMNIS sample racks can be stacked on top of one another on the transport handles.

The OMNIS sample rack contains spout holes *(11-**4**)* at the top for emptying liquids that seeped through due to overflowing, spilling or cleaning.

The OMNIS sample rack is not dishwasher-safe.

Table 8 Versions of the OMNIS sample rack

Vessel volume	Number of vessels	Article number
250 mL	9	6.02041.010
200 mL	9	6.02041.020
150 mL	9	6.02041.050
120 mL	16	6.02041.030
75 mL	25	6.02041.040

3.2 Indicators and controls

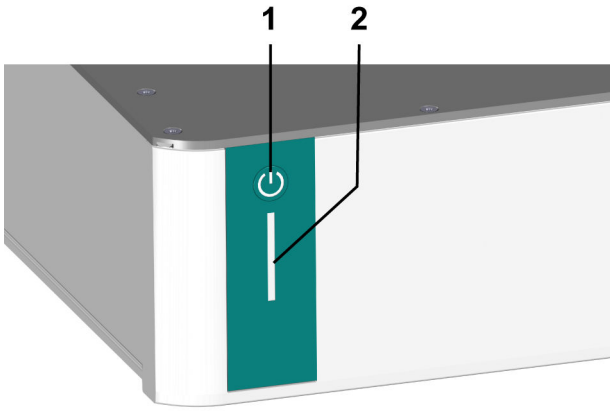


Figure 12 Indicators and controls

1 On/off switch	**2 Status display** multi-colored

Table 9 Behavior of the on/off switch

Pressure duration	Function	Acoustic signal
press briefly (1 s)	Switching on the device	A beep sounds as soon as the LED flashes yellow (instrument can be reserved by an OMNIS system)
press briefly (2 s)	Shut down the instrument	Beep after 2 s
press and hold (approx. 5 s)	Gripper opens	Dual beeps

See also

Switching on and off (chapter 6.1, page 37)

System – Signals (chapter 3.3, page 21)

3.3 System – Signals

System components with status indicators show their operating status with colors and/or flashing patterns. The meaning of the colors and flashing patterns is explained in the following table.

Visual signal		Meaning
	LED lights up yellow.	System start or initialization
	LED flashes yellow (slowly).	Ready for connection setup or locking
	LED flashes yellow (fast).	Connection setup started or locking underway
	LED lights up green.	Ready for operation
	LED flashes green (slowly).	In operation
	LED flashes red (fast).	Malfunction or error

Some system components only use part of the explained flashing patterns.

3.4 Connectors

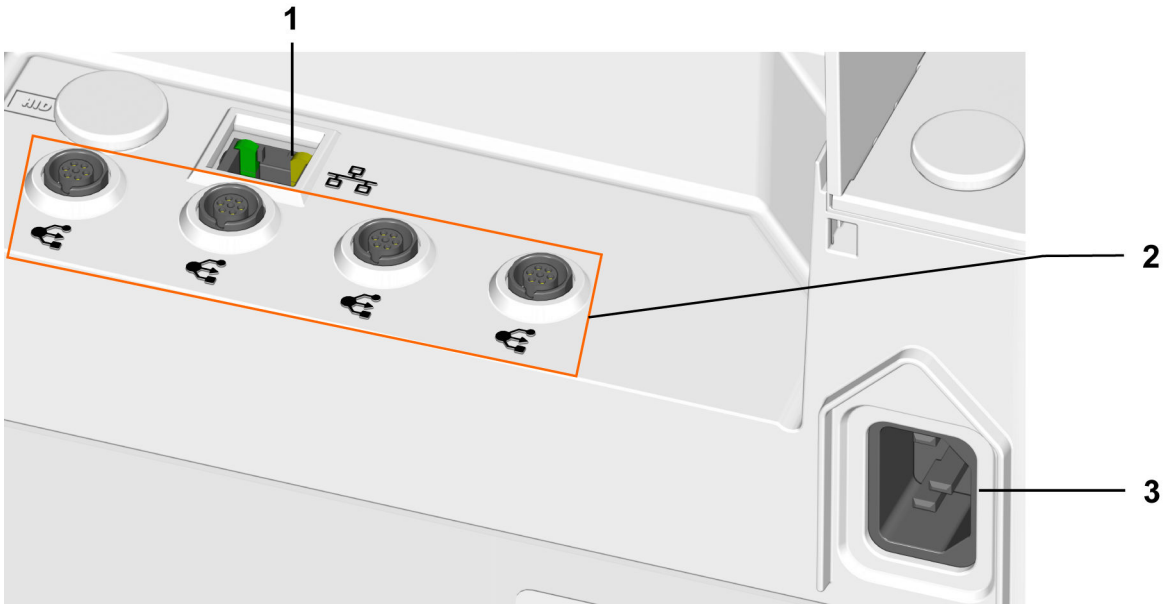


Figure 13 Connections on the rear

1 Ethernet network connection or LAN connector

LAN = Local Area Network.

Connection socket for a connecting cable to the local network

2 MDL connectors

MDL = Metrohm Device Link

Connection socket for connecting cables between OMNIS products

3 Power socket

Connection socket for the energy supply

4 Delivery and packaging

4.1 Delivery

Inspect the delivery immediately upon receipt:

- Check the delivery against the delivery note to ensure completeness.
- Check the product for damage.
- If the delivery is incomplete or damaged, contact your regional Metrohm representative.

4.2 Packaging

The product and accessories are supplied in protective special packaging. Keep this packaging to ensure safe transportation of the product. If a transport locking device is present, keep this as well for future reuse.

5 Installation

5.1 Installation by Metrohm

Installation and the initial start-up of the system is always carried out by the regional Metrohm service representative.

5.2 Setup location

The product is only suitable for operation indoors and may not be used in explosive environments.

The following requirements apply to the setup location:

- The room is well-ventilated and protected against both direct sunlight and excessive temperature fluctuations.
- The setup space is stable and free of vibrations. The setup space must be suitable for the dimensions and weight of the components (see technical specifications).
- All cables and connectors are accessible during operation. The cables are safely installed (no tripping hazards).
- The workplace is ergonomically designed and ensures trouble-free operation of the product.

5.3 Lifting the OMNIS Sample Robot WSM

Try to avoid lifting the Sample robot after initial installation. However, if a transport is necessary, then observe the following:

- Lift the Sample robot on all 4 sides or transport it on a continuous plate to avoid sagging.
- Check the positioning accuracy of the sample robot after placing the sample robot down.
- If inaccuracies occur, contact the regional Metrohm service representative for a readjustment.

5.4 Mounting the safety shield

WARNING

Removed coverings

Removing coverings leaves the user and product unprotected, as sensitive electronics and live parts are exposed. There is a risk of injury and the possibility of damaging the product.

- Use the product only with the coverings mounted.
- If coverings are damaged or missing, then disconnect the product from the energy supply and contact a regional Metrohm service representative.
- Always have maintenance work and repairs on electrical components carried out by a regional Metrohm service representative.

Mounting the safety shield

Prerequisite:

- The sample robot is switched off

1 Inserting the safety shield

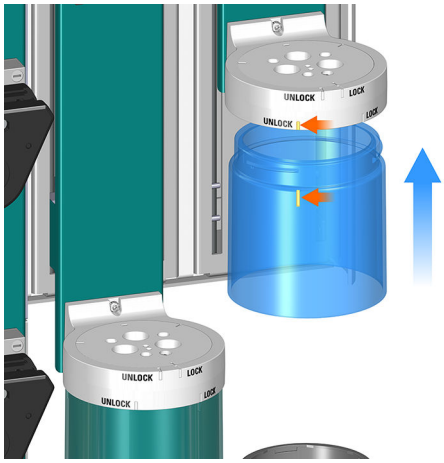


Figure 14 Inserting the safety shield

The titration head holder has the designations "LOCK" for closed and "UNLOCK" for open.

- Insert the safety shield into the titration head holder .
- Align the safety shield with the "UNLOCK" marking in the titration head holder (orange arrows).
- Press the safety shield upwards into the titration head holder.

2 Fastening the safety shield

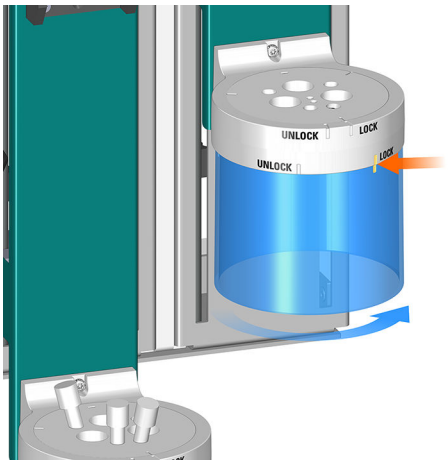


Figure 15 Fastening the safety shield

- Rotate the safety shield in the direction of the arrow until the marking points to "LOCK".

5.5 Connecting the workstation module

Mounting the WSM connector plate

Prerequisite:

- The sample robot is switched off

1 Removing the screws from the lid

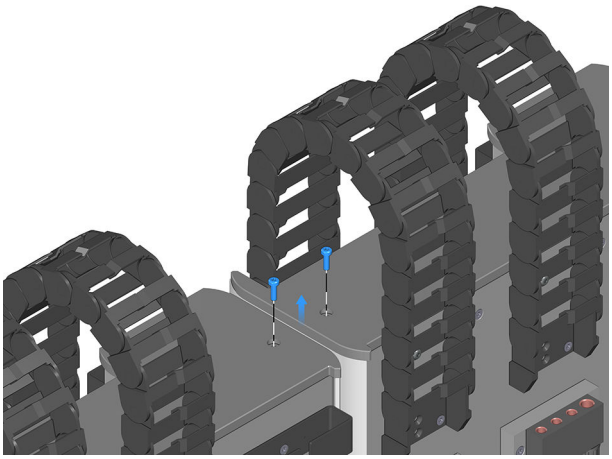


Figure 16 Removing the screws

- Remove the screws shown from the lid.

2 Positioning and fastening the WSM connector plate

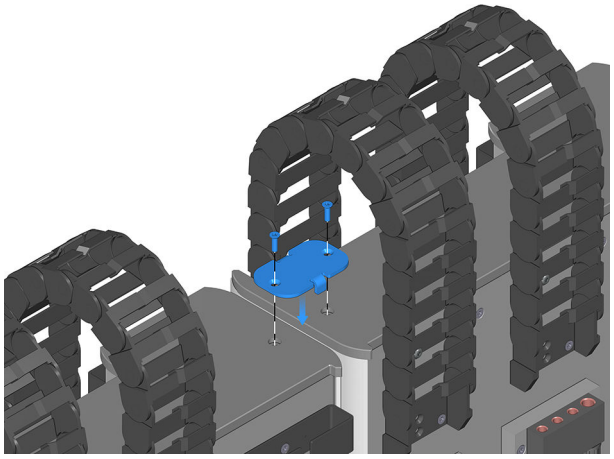


Figure 17 Positioning and fastening the WSM connector plate

- Position the WSM connector plate above the two workstation modules.
- Attach the WSM connector plate to the two workstation modules using the screws supplied.

5.6 Connecting the tubing to the distributor of the workstation module

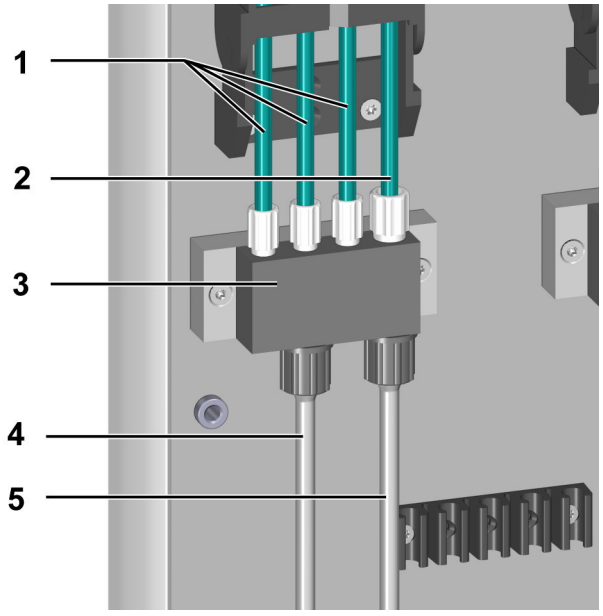


Figure 18 Tubing on the distributor

1 Rinsing tubing	**2 Aspiration tubing**

3	**Distributor**	**4**	**Rinsing pump outlet tubing**
5	**Aspiration pump inlet tubing**		

Connecting the tubing to the distributor

Prerequisite:

- The sample robot is switched off

1 Connecting the rinsing tubing

Manually tighten or plug in the three rinsing tubings *(18-**1**)* in the bores of the distributor *(18-**3**)*.

The rinsing tubings lead to the spray nozzles of a titration head.

2 Connecting the aspiration tubing

Manually tighten the aspiration tubing *(18-**2**)* in the bore of the distributor.

3 Connecting the rinsing pump outlet tubing

Remove the coupling nut.

Pull the end of the tubing over the connection nipple of the distributor and fasten in place with the coupling nut.

The rinsing pump outlet tubing *(18-**4**)* leads to the rinsing pump (**Pump 1** or **Pump 3**) and can be cut to the correct length.

4 Connecting the aspiration pump inlet tubing

Remove the coupling nut.

Pull the end of the tubing over the connection nipple of the distributor and fasten in place with the coupling nut.

The aspiration pump inlet tubing *(18-**5**)* leads to the aspiration pump (**Pump 2** or **Pump 4**) and can be cut to the correct length.

5.7 Mounting the drainage conduit

The execution and mounting position of the drainage conduit differs, depending on the version of the OMNIS Sample Robot:

- For **OMNIS Sample Robot M – WSM** and **OMNIS Sample Robot L – WSM**, the drainage conduit is mounted below the workstation *(see "Preparing and mounting the drainage conduit – M and L", page 30)*.
- For **OMNIS Sample Robot S – WSM**, no drainage conduit is required, the workstation module is connected directly to a drainage tubing *(see "Preparing and mounting the drainage tubing – OMNIS Sample Robot S – WSM", page 32)*.

Avoid tight bending radii and kinks when laying the tubing. It is also important to ensure that no liquid can remain in the tubing.

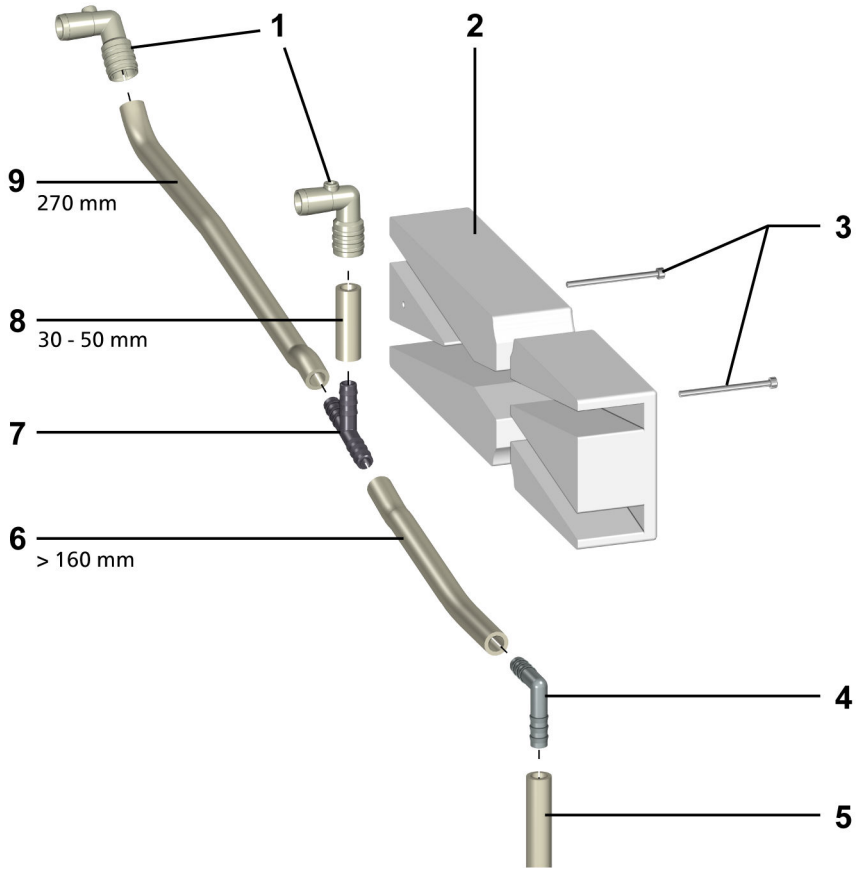


Figure 19 Drainage conduit – Overview

1	**Tubing adapter for drainage tubing (6.01804.500)**	**2**	**Drainage conduit**

3	**Screws (supplied)**	**4**	**Connection bracket**
5	**Tubing to waste canister**	**6**	**Tubing, 160 mm**
7	**Y tubing connector (6.01808.010)**	**8**	**Tubing, 35 mm**
9	**Tubing, 270 mm**		

Preparing and mounting the drainage conduit – M and L

Required accessories:

- 1 tubing (6.01803.000) for connecting to the tubing adapter and the waste canister
- Drainage conduit
- Tubing adapter and connector according to the overview

1 Cutting the tubing to length

- For the workstation module mounted directly on the drainage conduit, cut off 1 piece of tubing with a length of approx. 30 to 50 mm *(19-**8**)*.
- For the second workstation module, cut a tubing 270 mm *(19-**9**)* long.
- For the connection to the waste canister, cut a tubing 160 mm *(19-**6**)* or longer. Select the tubing length so that the connection bracket *(19-**4**)* rests exactly on the corner of the laboratory bench to prevent the tubing from kinking.

2 Mounting the drainage conduit

- Pre-assemble the tubing adapter *(19-**1**)*, tubing, the Y tubing connector *(19-**7**)* and the connection bracket as shown in the overview.
- Place the connected elements in the desired orientation in the drainage conduit *(19-**2**)*.

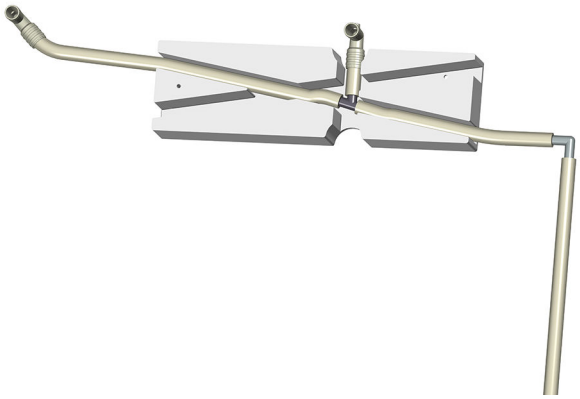


Figure 20 Mounting the drainage conduit

The drainage conduit can be mounted in 2 different directions to adjust the orientation of the drainage to the local installation.

- Check if the drainage conduit is correctly oriented.
- If necessary, mount the drainage conduit the other way round with the tubing towards the rear of the instrument.

3 Preparing the instrument

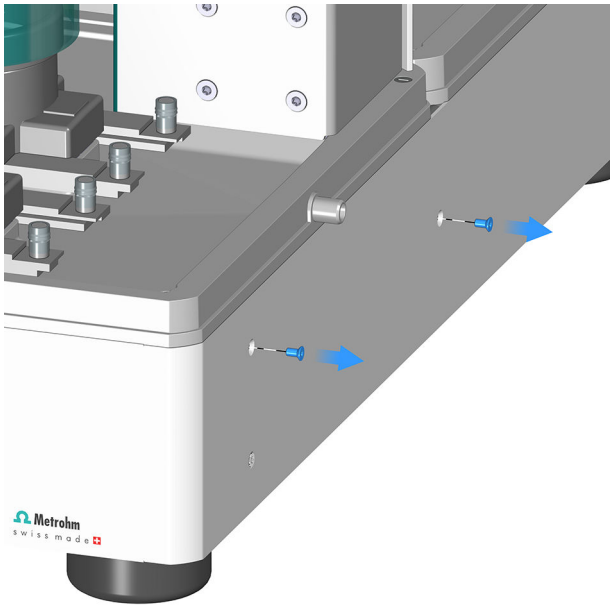


Figure 21 Removing the screws

- Loosen and remove the screws at the rear.

4 Fastening the tubing adapter and the drainage conduit

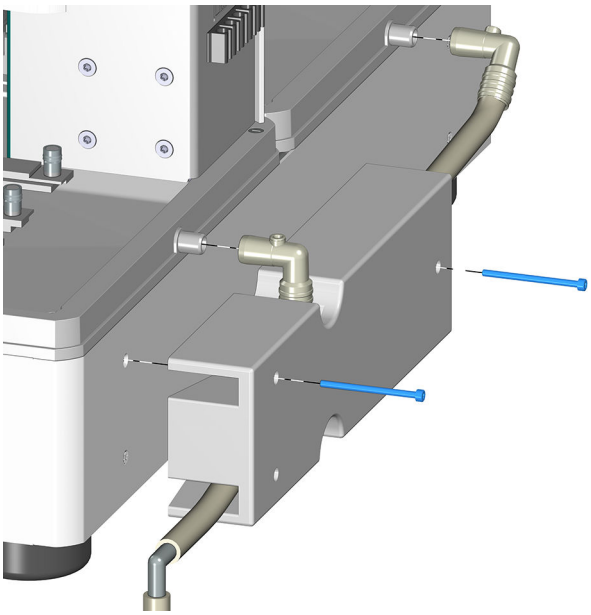


Figure 22 Mounting the drainage conduit

- Position the tubing adapter and the drainage conduit and fasten them with the screws supplied.

5 Connecting the drainage conduit with the waste canister

- Cut another tubing to length *(19-**5**)*. The tubing should be long enough to connect the drainage conduit with the waste canister.
- Use the adapter to fasten it the lid supplied, stabilize it in place with the red clamp, and screw it onto the waste canister.
  Ensure that the tubing points as straight as possible into the waste canister.

Preparing and mounting the drainage tubing – OMNIS Sample Robot S – WSM

Required accessories:

- 1 tubing (6.01803.000) for connecting to the tubing adapter and the waste canister
- 1 tubing adapter (6.01804.500)

1 Mounting the tubing adapter

- Push the tubing adapter (6.01804.500) onto the drain nozzle.

2 Cutting to length and fastening the tubing

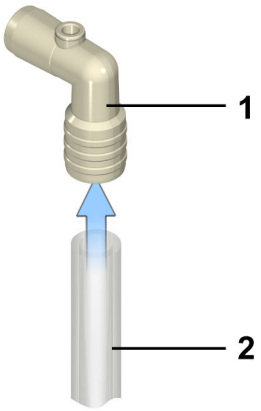


Figure 23 Cutting to length and mounting the tubing

- Cut the tubing (6.01803.000) to length. The tubing should be long enough to connect the drainage conduit with the waste canister.
- Insert the piece of tubing (2) into the tubing adapter (1) (6.01804.500).

3 Connecting the drainage tubing with the waste canister

- Fasten the drainage tubing with the adapter to the lid supplied, stabilize it in place with the red clamp, and screw it onto the waste canister. Ensure that the tubing points as straight as possible into the waste canister.

5.8 Connecting the inlet tubing and the outlet tubing

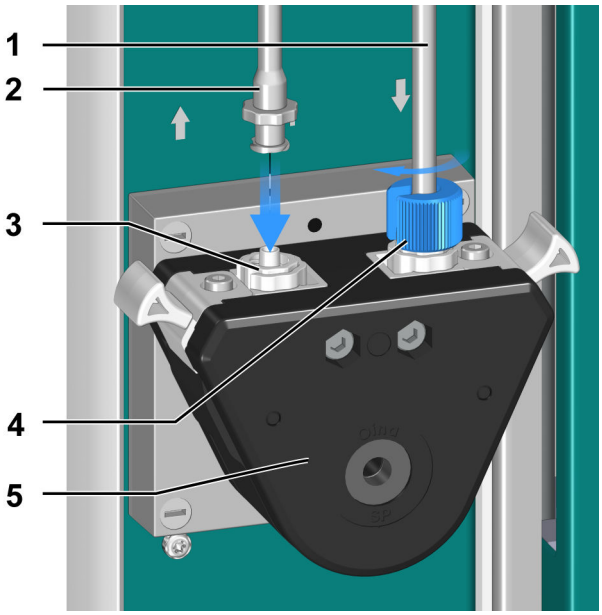


Figure 24 Connecting the inlet tubing and the outlet tubing

1	**Inlet tubing**	**2**	**Outlet tubing**
3	**Connecting element**	**4**	**Luer tool**
5	**Peristaltic pump**		

Connecting the inlet tubing and the outlet tubing of the peristaltic pump

Prerequisite:

- The sample robot is switched off

Required accessories:

- Luer tool (6.0262.1030)

1 Plug the inlet tubing *(24-**1**)* into the connecting element *(24-**3**)* of the peristaltic pump *(24-**5**)* by hand and rotate clockwise with the aid of the Luer tool until the tubing fits closely.

The tubing connections at the inlet and outlet of the peristaltic pump correspond to the "Luer lock system".
The peristaltic pump rotates clockwise.

2 Connect the outlet tubing *(24-**2**)* following the same procedure.

3 Place the tubing without squeezing it onto the top side by using the tubing organizer. Make sure that the tubing is positioned as close as possible to the housing.

The pump operates the aspiration tubing and the three rinsing tubings

5.9 Plugging in the power cord

WARNING

Health hazards from electrical potential.

Severe injuries with possibly fatal consequences.

- Operate the product only if it is in perfect condition. The housing must also be intact.
- Only use the product with the covers fitted.
- Protect live components (e.g. power supply unit, power cord, connection sockets) against moisture.
- Always have maintenance work and repairs on electrical components carried out by a regional Metrohm service representative.

Required accessories:

- Power cord:
  - Length: max. 2 m
  - Number of conductors: 3, with protective ground
  - Conductor cross-section: 3x min. 1.0 mm^2 / 18 AWG
- Instrument plug:
  - IEC 60320, type C13, 10 A

- Power plug:
  - 6.2122.XX0 (according to customer requirement), min. 10 A

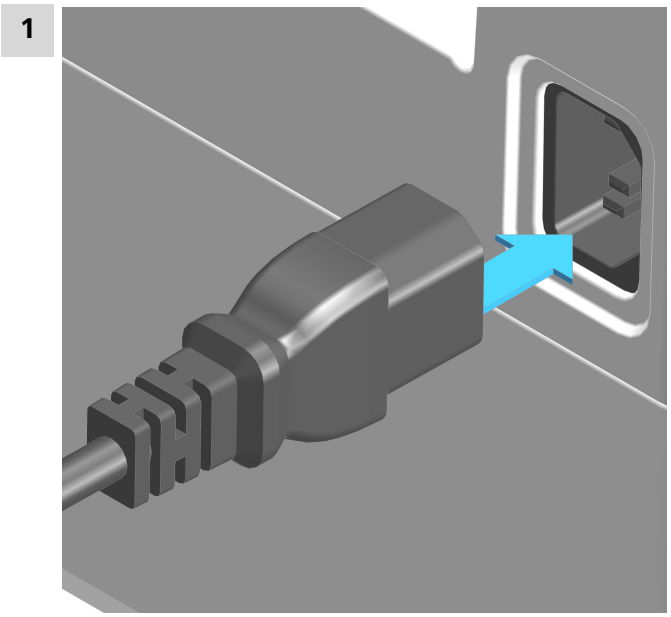


Figure 25 Plugging in the power cord

- Plug the power cord into the product's power socket. Use only permitted power cords.
- Connect the power cord to the energy supply.

6 Operation

The product can be operated via the OMNIS Software. Further information on the OMNIS Software under *OMNIS Help*.

6.1 Switching on and off

NOTICE

Data loss

Disconnecting OMNIS instruments from the power grid (e.g. with a connector strip) may lead to irreversible data loss. If the instrument can no longer be used, contact your regional Metrohm service representative.

- Press the on/off switch for 2 seconds to safely shut down the instrument.
- Wait until the status display goes out and only then disconnect the electricity.

1 Switching on the Sample robot

Press the on/off switch for 1 second.

- The status display lights up in yellow. A single beep sound will then be heard. There will be a further beep sound for each attached rack.
- The status display flashes yellow as soon the sample robot is ready to connect to the OMNIS Software.
- The status display flashes green as soon as the sample robot is connected to the OMNIS Software and is ready for operation.

2 Switching off the Sample robot

Press the on/off switch for 2 seconds until the single beep sound is heard.

- The status display goes out and the Sample robot is switched off.

See also

Indicators and controls (chapter 3.2, page 20)

6.2 Attaching and removing the OMNIS sample rack

⚠ CAUTION

Using non-authorized sample vessels

The sample robot was designed for use with specific sample vessels. Error-free and safe operation can therefore only be ensured with authorized sample vessels. The use of non-authorized sample vessels can lead to injuries and/or damage of the sample robot.

- Use only sample vessels that are authorized by Metrohm.

Attaching the OMNIS sample rack

1

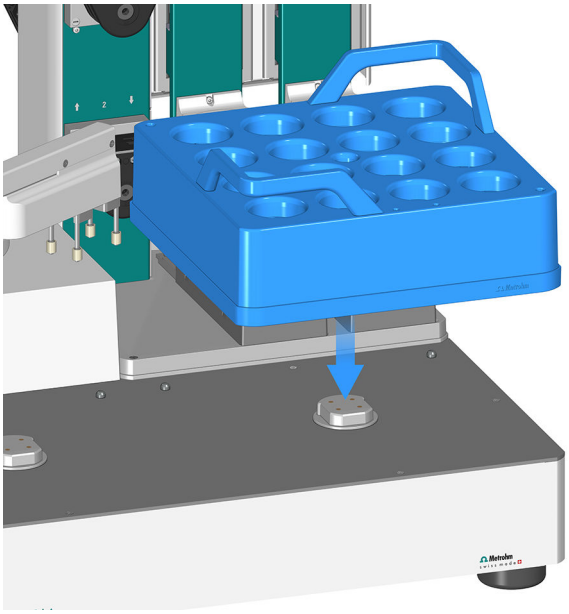


Figure 26 Attaching the OMNIS sample rack

- Grip the OMNIS sample rack *(11-**3**)* on both transport handles.
- Attach the OMNIS sample rack on the rack holder *(4-**8**)*. Because of the shape of the rack holder and the counterpart on the OMNIS sample rack, the OMNIS sample rack can be attached to the rack base in only one position.

A brief signal will sound as soon as the OMNIS sample rack is seated correctly on the rack holder.

Removing the OMNIS sample rack

1 ▪ Grip the OMNIS sample rack on both transport handles *(11-**3**)* and remove it upwards.

A brief signal will sound as soon as the OMNIS sample rack has been removed.

7 Maintenance

Regularly perform maintenance work on the product to prevent malfunctions and to ensure a long service life.

- Metrohm recommends having the products maintained by the regional Metrohm service representative as part of an annual service. Shorter maintenance intervals may be necessary if you frequently work with caustic and corrosive chemicals.
- Only perform maintenance work that is described in this instruction. Contact your regional Metrohm service representative for further maintenance work and repairs. The regional Metrohm service representative offers every form of technical advice for maintenance and service of all Metrohm products.
- Only use spare parts that meet the technical requirements of the manufacturer. Original spare parts always meet these requirements.

7.1 Replacing the gripper finger tips

Replacing the finger tips and the sleeve

Finger tips and sleeves must be replaced at the same time for most gripper finger types.

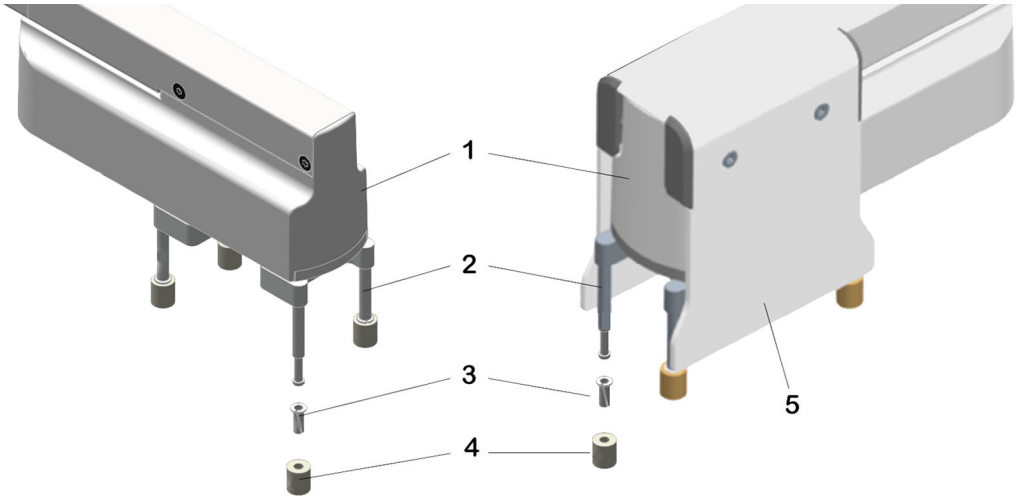


Figure 27 Replacing the finger tips and the sleeve

1 **Gripper**	**2** **Gripper fingers** for 43–65 mm (6.02601.010), for 50–72 mm (6.02601.020), for 28–48 mm (6.02601.040)

3	**Sleeve**	**4**	**Finger tips** Consumable Kit OMNIS Gripper (6.05700.000)
5	**Retainer**		

Dismantling finger tips and sleeves

Prerequisite:

- The sample robot is switched off.
- There is no beaker in the gripper.

If you are using a gripper with retainer *(27-**5**)*, lift the retainer off the gripper beforehand.

1 Clasp the gripper *(27-**1**)* from above with one hand and hold it firmly.

2 Use the other hand to pull the finger tip *(27-**4**)* downwards and off the gripper finger *(27-**2**)* by applying gentle rotating movements.

3 Stretch the sleeve *(27-**3**)* and pull it off downwards.

A slot to facilitate assembly and disassembly is located in the sleeve. The sleeve can be stretched over this slot, e.g., with a small screwdriver or fingernail, and then subsequently removed via the lower section on the gripper finger.

Assembling finger tips and sleeves

Prerequisite:

- The sample robot is switched off.
- The sleeve and the finger tip are disassembled.

1 Clasp the gripper from above with one hand and hold it firmly.

2 Stretch the sleeve and slide it onto the gripper finger from below.

A slot to facilitate assembly and disassembly is located in the sleeve. The sleeve can be stretched over this slot, e.g., with a small screwdriver or fingernail, and then subsequently pushed over the lower section on the gripper finger.

3 Using gentle rotating movements, slide the finger tip onto the sleeve from below.

4 Make sure that the finger tip is firmly seated on the gripper finger and that it can still be rotated.

5 Place the retainer, if applicable, back onto the gripper with retainer.

The gripper with retainer must always be operated with the retainer!
This ensures that the beakers are always gripped correctly.

Replacing finger tips

For gripper fingers for sample beakers with outer diameter 48 - 64 mm, only the finger tips must be replaced.

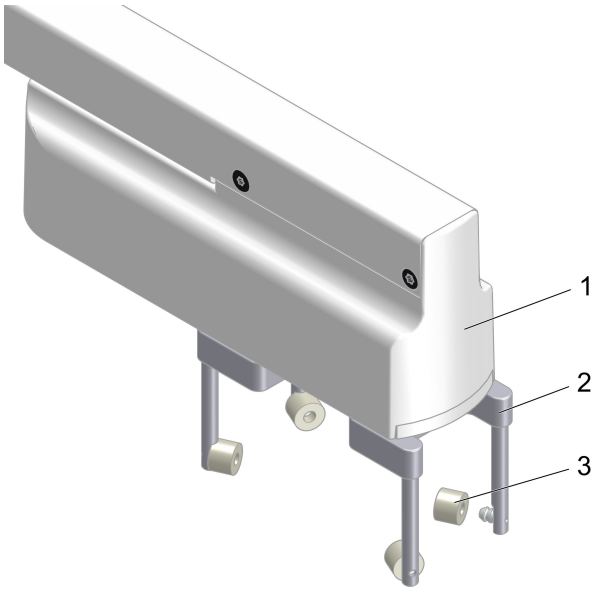


Figure 28 Replacing the finger tips

1 **Gripper**	**2** **Gripper fingers** For 48–64 mm (6.02601.030)
3 **Finger tips** (6.05700.250)	

Dismantling the finger tips

Prerequisite:

- The sample robot is switched off.
- There is no beaker in the gripper.

1 Clasp the gripper *(28-**1**)* from above with one hand and hold it firmly.

2 Use the other hand to pull the finger tip *(28-**3**)* horizontally and off the gripper finger *(28-**2**)* by applying gentle rotating movements.

Assembling the finger tips

Prerequisite:

- The sample robot is switched off.
- The finger tips are disassembled.

1 Clasp the gripper from above with one hand and hold it firmly.

2 Using gentle rotating movements, slide the finger tip horizontally onto the gripper finger.

3 Make sure that the finger tip is firmly seated on the gripper finger.

7.2 Replacing the beaker adapter

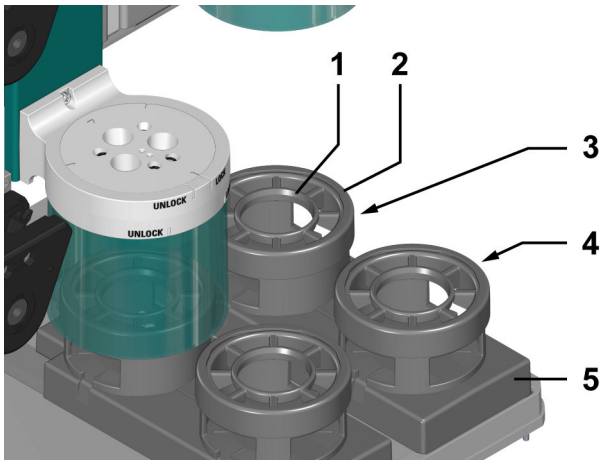


Figure 29 Slide – Overview

1	**Beaker adapter**	**2**	**Ring**
3	**Front beaker holder**	**4**	**Rear beaker holder**
5	**Slide**		

Table 10 Available beaker adapters

Beaker volume	Beaker diameter	Beaker height	Article number
75 mL	35.5 mm	113 mm	6.01404.040
120 mL	47.3 mm	113 mm	6.01404.030

Beaker volume	Beaker diameter	Beaker height	Article number
150 mL	62 mm	96 mm	6.01404.050
200 mL	70 mm	100 mm	6.01404.020
250 mL	64.7 mm	113 mm	no adapter required

Replacing the beaker adapter

Prerequisite:

- The sample robot is switched off
- The slide is extended

1 Removing the ring

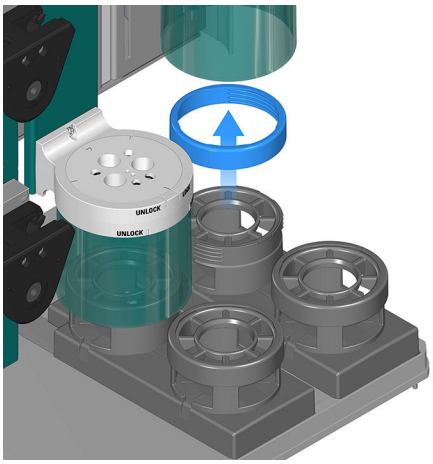


Figure 30 Removing the ring

- Rotate the ring *(29-**2**)* counterclockwise by hand.
- Remove the ring from the slide upwards *(29-**5**)*.

2 Removing the beaker adapter

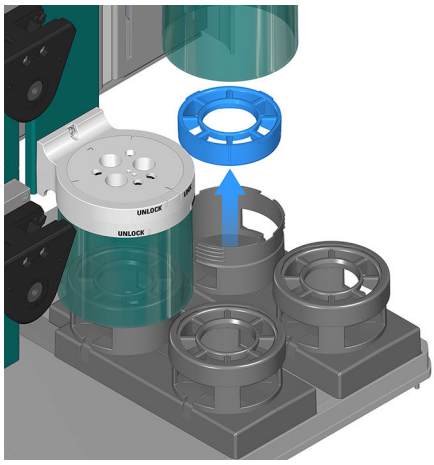


Figure 31 Removing the beaker adapter

- Remove the beaker adapter *(29-**1**)* out of the slide from above.

3 Inserting the beaker adapter

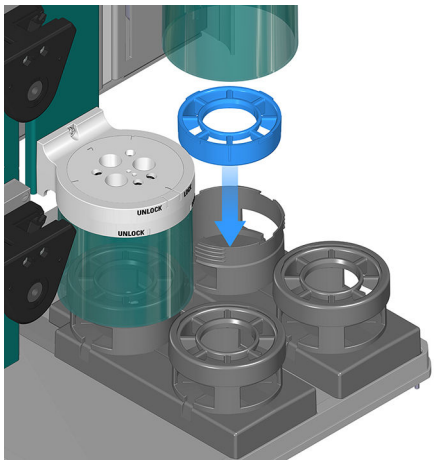


Figure 32 Inserting the beaker adapter

- Insert the beaker adapter from above into the slide.
- Rotate the beaker adapter so that the 4 lugs slide into the grooves of the slide.

Make sure that the correct values for the beaker diameter and beaker height (see "Available beaker adapters and settings" table) are entered for the respective workstation module in the OMNIS Software.

The value can be changed in the **Instruments** area under **Properties / Specific data**.

When changing to another beaker size, make sure to also take the titration head into account.
Metrohm recommends using the same titration head for the 150 mL beaker size as for the 200 mL beaker size (6.01403.060).

4 Fastening the ring

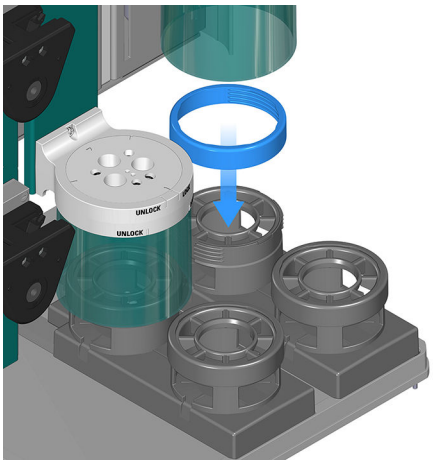


Figure 33 Fastening the ring

- Attach the ring to the beaker holder.
- Tighten the ring clockwise.

7.3 Replacing the titration head

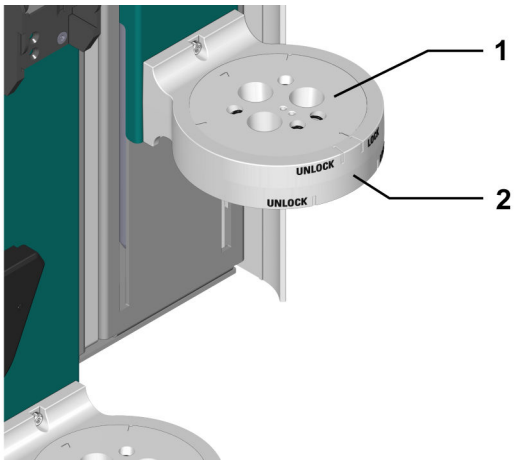


Figure 34 Titration head holder – Overview

1 Titration head	**2 Titration head holder**

Replacing the titration head

Prerequisite:

- The sample robot is switched off.
- All of the sensors in the titration head are dismounted.
- The safety shield is dismounted.

1 Removing the titration head

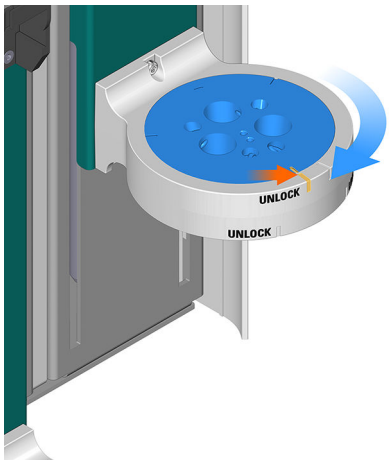


Figure 35 Loosening the titration head

- Grip the titration head *(34-**1**)* with one hand and rotate it in the direction of the arrow until the marking points to "UNLOCK" .

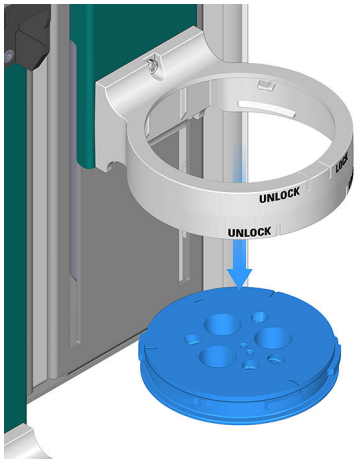


Figure 36 Removing the titration head

- Remove the titration head downwards out of the titration head holder *(34-**2**)*.

2 Inserting the titration head

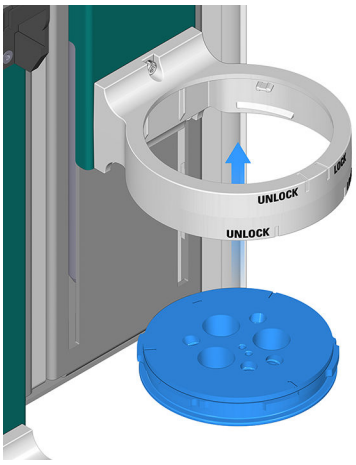


Figure 37 Inserting the titration head

- Insert the titration head from the bottom into the titration head holder.

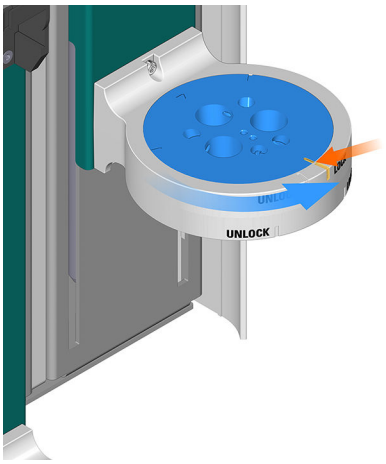


Figure 38 Fastening the titration head

- Rotate the titration head in the direction of the arrow until the marking points to "LOCK".

Table 11 Available titration heads

Beaker volume	Stirring propeller	Openings / designations	Article number
75 mL	6.01900.020	4xM10	6.01403.010
75 mL		4xM10 for KFT	6.01403.020
75 mL		2xSGJ14, 1xM10	6.01403.040

Beaker volume	Stirring propeller	Openings / designations	Article number
120 mL	6.01900.030	3xSGJ14, 4x6.4mm	6.01403.030
120 mL		1xSGJ14, 2xM6, 1xM10, 1x6.4mm	6.01403.050
150 mL	6.01900.010	3xSGJ14, 4x6.4mm	6.01403.060
200 mL	6.01900.030	3xSGJ14, 4x6.4mm	6.01403.060
250 mL	6.01900.010	6xSGJ14, 3xSGJ9	6.01403.000

7.4 Replacing the lid seal

Replace the lid seal of the KF Dis-Cover lid approx. every 6 months.

Replacing the lid seal

1 Removing the seal

Figure 39 Removing the lid seal

- Slide the lid seal over the edge of the groove on one side
- Pull the lid seal downwards over the lid bottom and remove it.

Do not reuse lid seals. Dispose of removed lid seals.

2 Mounting the lid seal

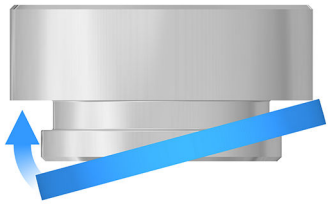


Figure 40 Mounting the lid seal

- Check the lid seal for damage. Use only intact lid seals.
- Press the lid seal over the lid bottom from below and press it into the groove.

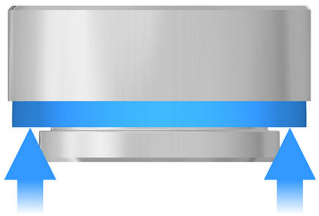


Figure 41 Pressing on the lid seal

- If necessary, stretch the lid seal slightly, rotate it and press it against the contact surface.

The lid seal must sit in the groove all round.

7.5 Checking the pump tubing

Daily/continuous checking

The pump tubing is comprised of wear parts and is susceptible to leaks and damage.

- Check the pump tubing each time before starting work.
- Replace worn and/or damaged pump tubing.
- When replacing pump tubing, also replace the press clamp.

Checking the pump tubing

Prerequisite:

- The sample robot is disconnected from the energy supply.

1 Removing the press clamp

(see figure 43, page 52)

2 Checking the pump tubing

- Perform a visual inspection of the pump tubing.
  Note any cracking or leaking liquid while doing so.
- If the pump tubing exhibits damage, then replace it without delay: *(see "Replacing the pump tubing", chapter 7.6, page 51)*

3 Mounting the press clamp

(see figure 47, page 54)

7.6 Replacing the pump tubing

If a pump tubing is replaced, then also replace the press clamp if possible.

Dismantling the pump tubing

Prerequisite:

- The sample robot is disconnected from the energy supply.

Required accessories:

- Luer tool (6.0262.1030)

1 Removing the peristaltic pump tubing

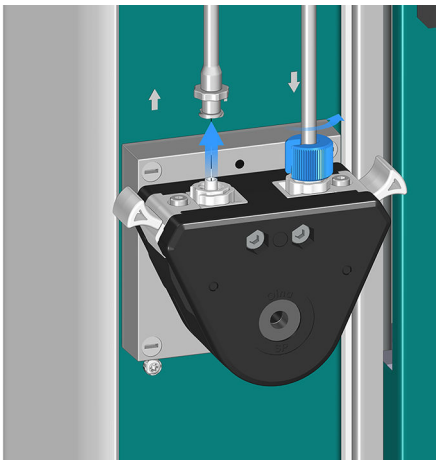


Figure 42 Removing the inlet and outlet tubing

- Rotate the tubing counterclockwise using the Luer tool.
- Remove the tubing upwards out of the peristaltic pump.

2 Removing the press clamp

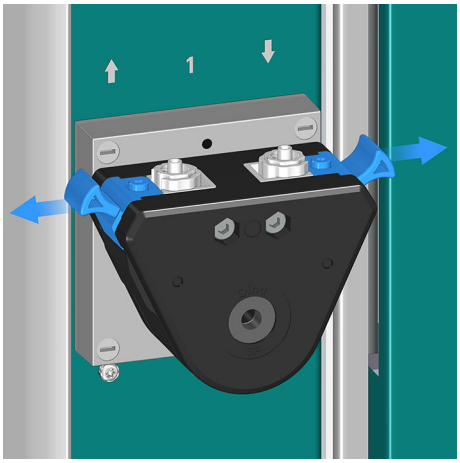


Figure 43 Removing the press clamp

- Pull the press clamp on one side outwards by hand.
- Pull off the other side.
- Remove the press clamp.

Do not tighten or loosen the hex screws of the press clamps.

3 Removing the pump tubing

Figure 44 Removing the pump tubing

Pull one of the connecting elements of the pump tubing outwards by hand. Afterwards, remove the other side.

The pump tubing is positioned close to the inner rollers for optimum conveyance of the media. It is for that reason that a certain amount of force must be applied for disassembling the first connecting element.

The pump tubing and its connecting elements are designed for this application of force.

Mounting the pump tubing

Prerequisite:

- The sample robot is disconnected from the energy supply.
- The pump tubing is dismounted.

Required accessories:

- Light-colored tubing from Pharm-A-line™ (6.01801.020)
- White press clamp (6.02703.000)

Use only permitted accessories.

1 Inserting the pump tubing

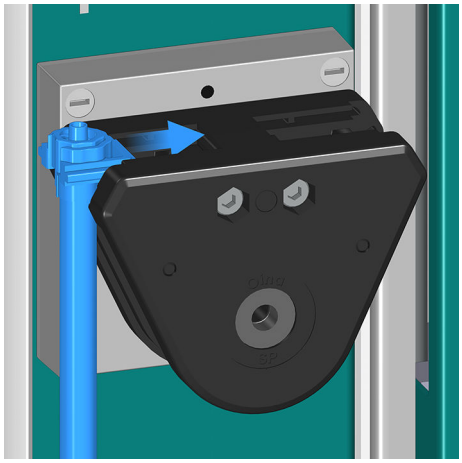


Figure 45 Inserting the pump tubing

- Slide one connecting element on one side into the guide rail and up until it stops.

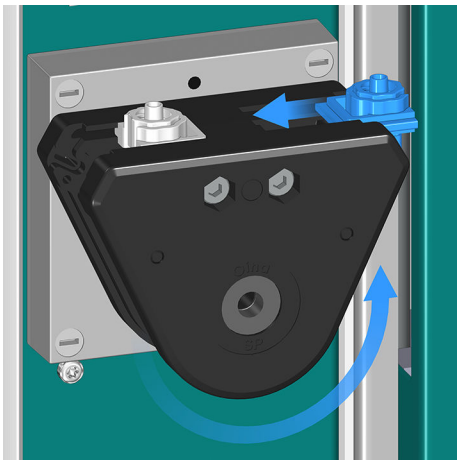


Figure 46 Placing the pump tubing around rollers

- Place the pump tubing around the rollers.
- Slide the second connecting element up on the other side until it stops in the guide rail as well.

The position of the pump tubing must be close and snug to the rollers for optimum conveyance of the media. It is for that reason that a certain amount of force must be applied for assembling the second connecting element.

The pump tubing and its connecting elements are designed for this application of force.

2 Mounting the press clamp

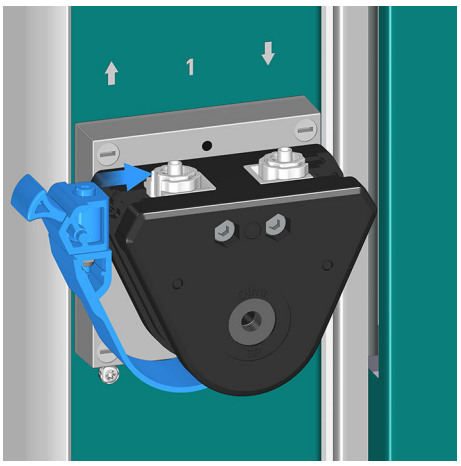


Figure 47 Mounting the press clamp – First side

- Insert one side of the press clamp with the lug into the guide rail provided for this purpose and push it in.

Figure 48 Mounting the press clamp – Next side

- Plug the other side in as well with the lug in the guide rail and push it in.
- Make sure that the press clamp is placed so that it is flush and positioned cleanly.

Do not tighten or loosen the hex screws of the press clamps.

3 Connecting the tubing with the peristaltic pump

(see "Connecting the inlet tubing and the outlet tubing", chapter 5.8, page 34).

7.7 Cleaning the product surface

Regularly clean the product to prevent malfunctions and to ensure a long service life.

- Remove spilled chemicals immediately.
- Protect plug connections against contamination.

WARNING

Chemical hazardous substances

Contact with aggressive chemical substances may cause poisoning or chemical burns.

- Wear personal protective equipment (e.g. protective glasses, gloves).
- Use exhaust equipment when working with vaporizing hazardous substances.
- Clean contaminated surfaces.
- Only use detergents that do not cause any unwanted side reactions with the materials to be cleaned.
- Dispose of chemically contaminated materials (e.g. cleaning material) in accordance with regulations.

WARNING

Health hazards from electrical potential.

Severe injuries with possibly fatal consequences.

- Operate the product only if it is in perfect condition. The housing must also be intact.
- Only use the product with the covers fitted.
- Protect live components (e.g. power supply unit, power cord, connection sockets) against moisture.
- Always have maintenance work and repairs on electrical components carried out by a regional Metrohm service representative.

Prerequisite:

- The product is switched off and disconnected from the energy supply.

Required accessories:

- Cleaning cloth (soft, lint-free)
- Water or ethanol

1 Clean the surface with a damp cloth. Remove persistent contamination with ethanol.

2 Wipe the surface with a dry cloth.

3 Clean the connectors with a dry cloth.

8 Troubleshooting

Messages on malfunctions and errors are displayed in the control software or in the embedded software (e.g. on the display of an instrument) and contain the following information:

- Descriptions of causes of malfunctions (e.g. jammed drive)
- Descriptions of problems with the control (e.g. missing or invalid parameter)
- Information on how to solve the problem

System components with status display elements also indicate malfunctions and errors with a red flashing LED.

Troubleshooting on the product is often only possible with the control software or the embedded software (e.g. initializing, moving to a defined position).

See also

System – Signals (chapter 3.3, page 21)

8.1 OMNIS Sample Robot WSM – Troubleshooting

CAUTION

Jammed drive and components

Risk of injury in the event of jammed, moving, and hot components. Contact with hot surfaces can cause burns. Contact with aggressive chemical substances may cause poisoning or chemical burns. To avoid danger, observe the following:

- Wear personal protective equipment (e.g. protective glasses, gloves).
- Loosen jamming only after switching off the instrument and allowing the components to cool down.

Problem	Cause	Remedy
It is not possible to initialize the sample robot.	There is a sample vial in the gripper.	Press and hold the on/off switch for approx. 5 seconds until a dual beep is heard *(see "Opening the gripper manually", chapter 8.2, page 58)*.

8.2 Opening the gripper manually

Prerequisite:

- The instrument is at a standstill.

1 **⚠ CAUTION**

Unsecured sample beakers

If the gripper is opened, then unsecured sample beakers may fall down. Spilled chemicals may result in injuries. The product may be damaged by liquid seeping in.

- Always hold the sample vessel in one hand if the gripper is being opened manually.
- Wear personal protective equipment (e.g. protective glasses, gloves).

Hold the sample beaker in one hand.

2 Hold the on/off switch pressed down for 5 seconds until a dual beep is heard.

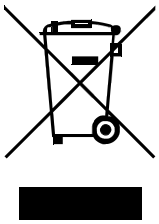
The gripper opens and the sample beaker can be removed.

In the event of a malfunction, sample beakers must always be removed manually. Open the gripper immediately or with a time delay in the event of a malfunction.

See also

Indicators and controls (chapter 3.2, page 20)

9 Disposal



Properly dispose of chemicals and of the product to reduce negative effects on the environment and public health. Local authorities, waste disposal companies or dealers provide more detailed information on disposal. Observe the WEEE EU directive (WEEE = Waste Electrical and Electronic Equipment) for the proper disposal of waste electronic equipment within the European Union.

10 Technical specifications

10.1 Ambient conditions

Nominal function range	+5 to +45 °C	at max. 80% relative humidity, non-condensing
Storage	+5 to +45 °C	at max. 80% relative humidity, non-condensing
Altitude / Pressure range	max. 3,000 m. above sea level / min. 700 mbar	
Overvoltage category	II	
Pollution degree	2	
Calibration:	Air (at 20 °C, 101.325 kPa)	

10.2 Energy supply

OMNIS Main Module WSM

Nominal voltage range	100–240 V AC	±10%
Nominal frequency range	50–60 Hz	±3%
Power consumption	max. 200 W	
Protection		
Internal fuse	4 ATH	cannot be replaced by the user

Workstation module

Nominal voltage	24 VDC	internal
Power consumption	max. 30 W	
Protection		
Internal fuse	1.5 ATH	cannot be replaced by the user

OMNIS sample rack

Nominal voltage	5 VDC	internal
Power consumption	max. 0.5 W	

10.3 Dimensions

OMNIS Sample Robot WSM

Measurements	
Width	560 mm
Height	750 mm
Depth	560 mm
Weight	36.0 kg

OMNIS Main Module WSM

Measurements	
OMNIS Main Module S – WSM	
Width	560 mm
Height	600 mm
Depth	560 mm
Weight	23.1 kg
OMNIS Main Module M – WSM	
Width	1,120 mm
Height	600 mm
Depth	560 mm

Weight	32.2 kg
OMNIS Main Module L – WSM	
Width	1,400 mm
Height	600 mm
Depth	560 mm
Weight	34.5 kg

Workstation module

Measurements

Width	280 mm
Height	758 mm
Depth	289 mm

Weight

1T/0P	8.9 kg
1T/2P	10.1 kg
2T/4P	12.9 kg

Sample rack

Measurements

Width	277 mm
Height	125 mm
Depth	277 mm

Weight max. 1.8 kg

10.4 Housing

OMNIS Main Module WSM

Materials

Lid	PBTP	Poly(butylene terephthalate)
Front and back panel	AW-6060	Aluminum, coated
Base	AW-5754	Aluminum, not coated
Enclosure	PBTP	Poly(butylene terephthalate)
	PP	Polypropylene
Front foils	PET	Poly(ethylene terephthalate), mat

IP degree of protection IP 20

Workstation module

Materials

Lid	PBT	Poly(butylene terephthalate)
Back panel	1.4301	Stainless steel, coated
Base	PBT-PC	Poly(butylene terephthalate) polycarbonate
Enclosure	PP	Polypropylene

IP degree of protection IP 20

10.5 Connectors

OMNIS Main Module WSM

Energy supply		via power connection
Socket		IEC 60320, type C14, 10 A
Power cord		
Length	max. 2 m	
Number of conductors	3	with protective ground
Conductor cross-section	min. 0.75 mm^2 / 18 AWG	
Plug		
Instrument side		IEC 60320, type C13, 10 A
Building side		country-specific
MDL	Metrohm Device Link	4 connectors
LAN	Local Area Network	
Type	Ethernet CAT 6	
Socket	RJ45	shielded
Cable type	(min. FFTP)	shielded
Cable length	max. 10 m	from Metrohm accessories
Contacts	4	Contact surfaces for OMNIS sample rack

Workstation module

Energy supply		internally via MDL
MDL	Metrohm Device Link	4 connectors

10.6 Display specifications

Status display	LED	multi-colored

10.7 Peristaltic pumps – Specifications

Workstation module

Peristaltic pump	0, 2, 4
Quantity added	300 mL/min
Aspiration volume	150 mL/min

10.8 Magnetic stirrer – Specifications

Adjustment range for rotational speed	+1 to +15	Rotation in counter-clockwise direction (seen from above)
	–1 to –15	Rotation in clockwise direction (seen from above)
Rotational speed change per step	120 rpm	
Maximum rotational speed	1,800 rpm	
Lengths of stirring bar	8, 12, 16, 25, 30 mm	

10.9 Sample handling specifications

OMNIS Sample Robot WSM

Robot arm

Load	3.7 N	typical
Speed	15 mm/s - 75 mm/s	

Gripper type with beaker diameter

Area	25.6 mm - 71.6 mm	from Metrohm accessories

Rack positions

Sample Robot S	1–2
Sample Robot M	1–5
Sample Robot L	1–7

Workstation module

Magnetic stirrer	√ / –	yes/no

OMNIS sample rack

Versions

Number of sample positions	9, 16, 25	from Metrohm accessories