800 Dosino

Manual

8.800.8002EN / v5 / 2025-05-16

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Technical Communication
Metrohm AG
CH-9100 Herisau

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.

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1 Overview

1.1 Product description

The 800 Dosino is a versatile dosing drive which can be used with a number of different Metrohm dosing devices or Metrohm titrators (e.g., Titrando). The 800 Dosino and the 807 Dosing Unit associated with it are suitable for simple dosings, titrations, complex automation and liquid handling tasks such as sample transfers or pipetting.

- The 800 Dosino can be used flexibly with the 807 Dosing Unit with cylinder sizes 2 mL, 5 mL, 10 mL, 20 mL or 50 mL, and adapted to various types of applications.
- Reagent replacements with the lowest possible loss of reagent are now possible, due to the fact that the design of the 807 Dosing Unit has been optimized to a minimum dead volume.
- The 800 Dosino is attached directly to the reagent bottle with the 807 Dosing Unit. A selection of thread adapters ensures optimum seating on the various bottle types and threads. This type of assembly results in a very space-saving installation. The dosing drive cannot be damaged by escaping liquid because it is above the reagent.
- In the event of frequent reagent replacement, the 807 Dosing Unit can remain mounted on the reagent bottle. The 800 Dosino can be removed and attached on the next 807 Dosing Unit in one manual step.

1.2 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**.

NOTE

Metrohm recommends keeping the accessories list for reference purposes.

1.3 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 device part in the figure.
1	**Instruction step** Perform the steps one after the other.
Method	**Dialog text**, **parameter** in the software
File ► New	Menu or menu item
[Continue]	**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.
	**WARNING** Warning of optical radiation
	**CAUTION** This symbol draws attention to possible damage to devices or device parts.
	**NOTICE** This symbol highlights additional information and tips.

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 of the application of the 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 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 of how to apply 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 General notes on safety

WARNING

Operate this device only according to the information contained in this documentation.

This device left the factory in a flawless state in terms of technical safety. The following instructions must be observed carefully to preserve this status and ensure non-hazardous operation of the device.

2.4.2 Electrical safety

Electrical safety when working with the device is ensured as part of the international standard IEC 61010.

WARNING

Only personnel qualified by Metrohm are authorized to carry out service work on electronic components.

WARNING

Never open the housing of the device. The device could become damaged. There is a considerable risk of injury if live components are touched.

There are no parts inside the housing which can be serviced or replaced by the user.

Supply voltage

WARNING

An incorrect supply voltage can damage the device.

Operate this device only with a supply voltage specified for it (refer to the rear of the device).

Protection against electrostatic charges

WARNING

Electronic components are sensitive to electrostatic charges and can be destroyed by discharges.

Do not fail to pull the power cord out of the power socket before setting up or disconnecting electrical plug connections at the rear of the device.

The device is to be operated only with the door closed.

2.4.3 Handling liquids

CAUTION

Periodically check all system connections for leaks. Observe the corresponding regulations that concern handling flammable and/or toxic liquids and their disposal.

2.4.4 Flammable solvents and chemicals

WARNING

All relevant safety measures are to be observed when working with flammable solvents and chemicals.

- Set up the device in a well-ventilated location (e.g., fume cupboard).
- Keep all sources of ignition far from the workplace.
- Clean up spilled liquids and solids immediately.
- Follow the safety instructions of the chemical manufacturer.

3 Overview of the device

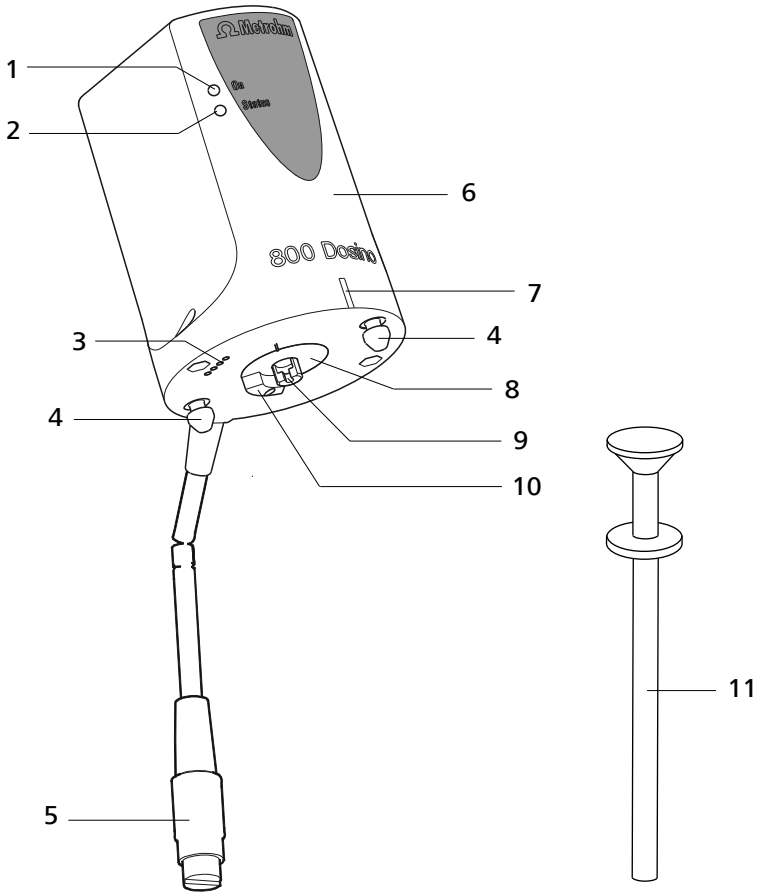


Figure 1 800 Dosino

1	**"On" LED** Lights up as soon as the 800 Dosino is connected to an MSB connector of a control device and the control device is switched on.
2	**"Status" LED** Indicates the current status of the 800 Dosino.
3	**Contact surfaces** For reading or writing the data from or onto the chip of the 807 Dosing Unit.
4	**Guide bolts** For inserting the 800 Dosino into the openings on the upper side of the 807 Dosing Unit.
5	**Mini DIN plug (8-pin)** For connecting to an MSB connector of the control device.
6	**Housing** Made of PBT (polybutylene terephthalate).
7	**Line marking green**
8	**Drive disk**

9 **Push rod**
With coupling. For moving the piston in the 807 Dosing Unit.

10 **Drive pin**
For rotation of the stopcock.

11 **Piston tongs (6.1546.030)**
For pulling the piston out of the 807 Dosing Unit.

4 Installation

4.1 Setting up the device

4.1.1 Packaging

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

4.1.2 Checks

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.

4.1.3 Location

The instrument has been developed for operation indoors and may not be used in explosive environments.

Place the instrument in a location of the laboratory which is suitable for operation and free of vibrations and which provides protection against corrosive atmosphere and contamination by chemicals.

The instrument should be protected against excessive temperature fluctuations and direct sunlight.

4.2 Setting up the 800 Dosino and the 807 Dosing Unit

4.2.1 800 Dosino with Titrando

If the 800 Dosino is used together with an 807 Dosing Unit with a Titrando, then 2 bottles (with titrant or auxiliary reagents) can be placed on the Titrando with 807 Dosing Unit mounted and 800 Dosino attached *(see figure 2, page 11)*. Additional titrants or auxiliary reagents can be given stable storage in bottle holders *(see figure 3, page 11)*.

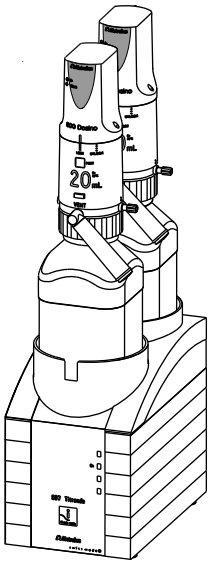


Figure 2 800 Dosino on the Titrando

4.2.2 800 Dosino with bottle holder

- If the 800 Dosino is utilized as a dosing drive for adding auxiliary reagents, (e.g., in operations with the Titrando), then the bottle holder (6.2061.010) with storage vessel for tubing tips can be used.
- The bottle holder can be adjusted for various bottle sizes with the aid of a holding clip (6.2043.005).

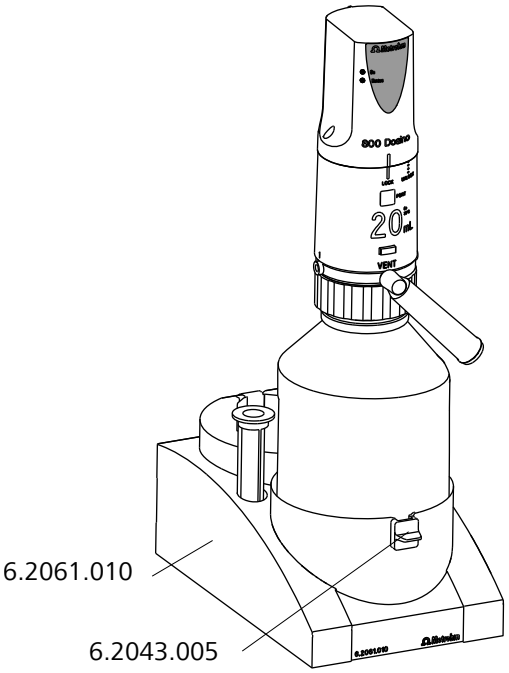


Figure 3 800 Dosino in the bottle holder

4.2.3 800 Dosino on the canister

An 807 Dosing Unit with attached 800 Dosino can be mounted directly on a canister when a suitable thread adapter is used. The thread adapter (6.1618.050) for the canister provided by Metrohm can be used for this purpose.

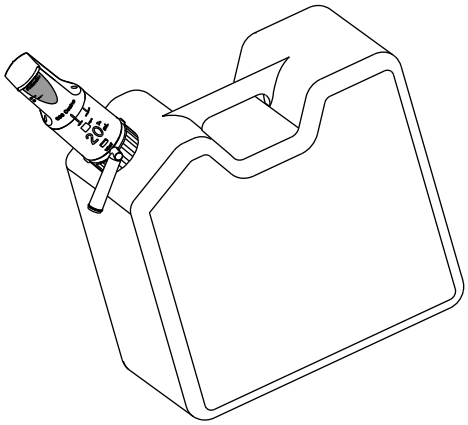
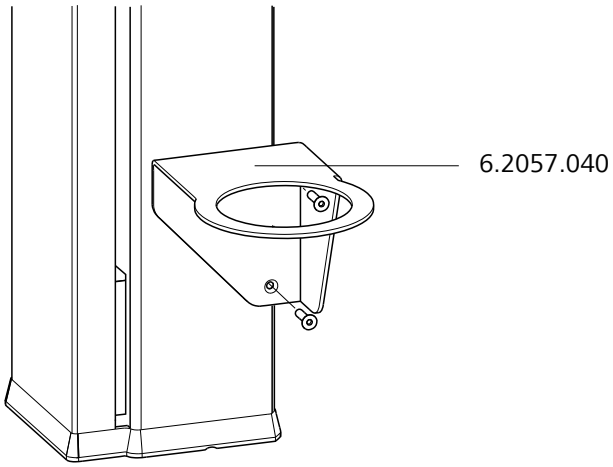


Figure 4 800 Dosino on the canister

4.2.4 800 Dosino with Sample Processor

With a Sample Processor, the 800 Dosino can be mounted on the side wall of the tower.

Screwing the holder to the Sample Processor



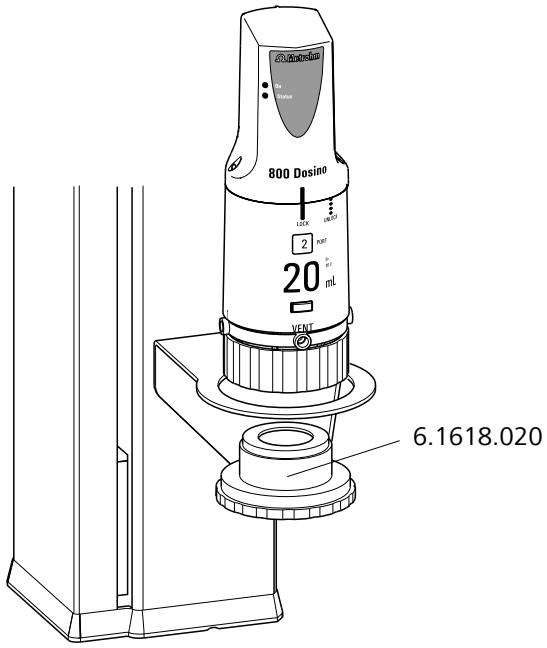
Required accessories:

- Holder (6.2057.040)

1 Remove the second and third screws from below on the side wall.

2 Screw the holder tight with the two screws supplied.

Mounting the 800 Dosino with the 807 Dosing Unit



Required accessories:

- GL 45 thread adapter (6.1618.020)

1 Attach the 800 Dosino to the 807 Dosing Unit.

2 Insert the thread adapter from below into the holder.

3 Attach the 807 Dosing Unit with attached 800 Dosino to the holder.

4 Screw the thread adapter tight.

4.3 Connecting the 800 Dosino

WARNING

Connect the 800 Dosino only to a control device that is switched off. The control device will be able to recognize the 800 Dosino only during the switch-on sequence. Observe the alignment of the connection socket. **Never** insert the connection cable with too much force, as this may damage the instrument electronics.

WARNING

In the case of a Titrando with 806 Exchange Unit, the MSB Port 1 is used by the internal dosing drive. The MSB 1 is therefore not available for the 800 Dosino.

The 800 Dosino is controlled by a Metrohm device via the 'Metrohm Serial Bus' (MSB). The 800 Dosino can be operated with all Titrando models. Connect the 800 Dosino on the rear of the Titrando to one of the connectors (MSB 1/MSB 2 to MSB 4).

The position of the correct connection socket (Mini DIN plug) to be used with the 800 Dosino can be found in the manual for the control device.

Connecting the 800 Dosino

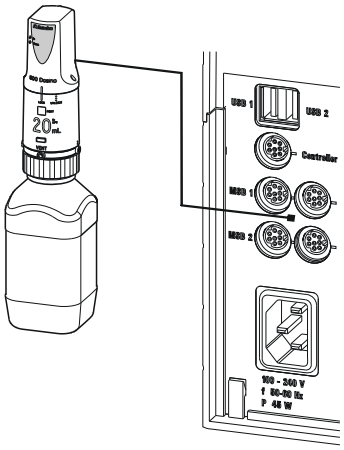


Figure 5 Connecting the 800 Dosino to the Titrando

1 Exit the control software.

2 Connect the connection cable of the 800 Dosino to one of MSB sockets on the rear of the control device.

Observe the reference mark on the socket.

3 Start the control software.

5 Mode of operation

The 800 Dosino is suitable with an 807 Dosing Unit with the cylinder sizes 2 mL, 5 mL, 10 mL, 20 mL or 50 mL for simple dosing tasks or complex liquid handling applications.

The 807 Dosing Unit is normally mounted on a reagent bottle and the necessary ports are equipped with tubings. The 807 Dosing Unit has 4 ports.

The dosing drive can be attached on an 807 Dosing Unit and also removed again in one easy manual step. With attachment, the piston integrated in the 807 Dosing Unit is coupled with the push rod of the dosing drive. The drive pin of the dosing drive is inserted into the recess provided in the centering tube in the 807 Dosing Unit.

5.1 Dosing/filling the cylinder

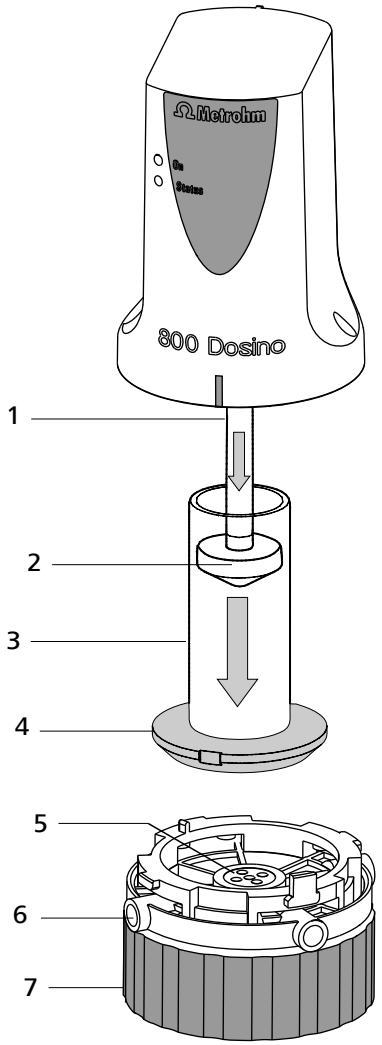


Figure 6 Dosing/filling the cylinder

1 **Push rod** With coupling. For moving the piston in the 807 Dosing Unit.	**2** **Piston** For ejecting and aspirating a solution.
3 **Cylinder** Contains the solution for dosing.	**4** **Valve disk in the cylinder base** A hole in the valve disk guides the solution into one of 4 openings in the distributor disk.

5 Distributor disk
The 4 holes in the distributor disk each sets up a connection with one of the 4 ports of the 807 Dosing Unit.

6 Distributor
Contains 4 ports for solutions. The ports are actuated by the distributor disk in the distributor and the valve disk in the cylinder base.

7 Fixing ring
With GL 45 inner thread for tightening the 807 Dosing Unit.

When a solution is ejected, the push rod of the 800 Dosino propels the piston in the cylinder downward. The solution in the cylinder is pressed through the valve disk in the cylinder base into one of the 4 openings of the distributor disk, depending on the stopcock position. The solution is guided onward to a port in the distributor.

After flat stopcock switching *(see chapter 5.2, page 19)*, i.e., rotating the valve disk, liquid is aspirated in the opposite direction through a different port as a result of the piston being pulled upward by the push rod of the dosing drive.

Because the 807 Dosing Unit is interchangeable, the coupling of the push rod exhibits a slight mechanical tolerance. The tolerance affects the dosing accuracy when the movement direction of the piston is changed and is mechanically compensated for by the dosing drive in automatic runs. The piston movements are controlled by the precise electronic fine mechanics of the dosing drive. Independent of the cylinder volume, the piston movements exhibit a resolution of 10,000 increments across the entire piston stroke.

5.2 Switching the stopcock

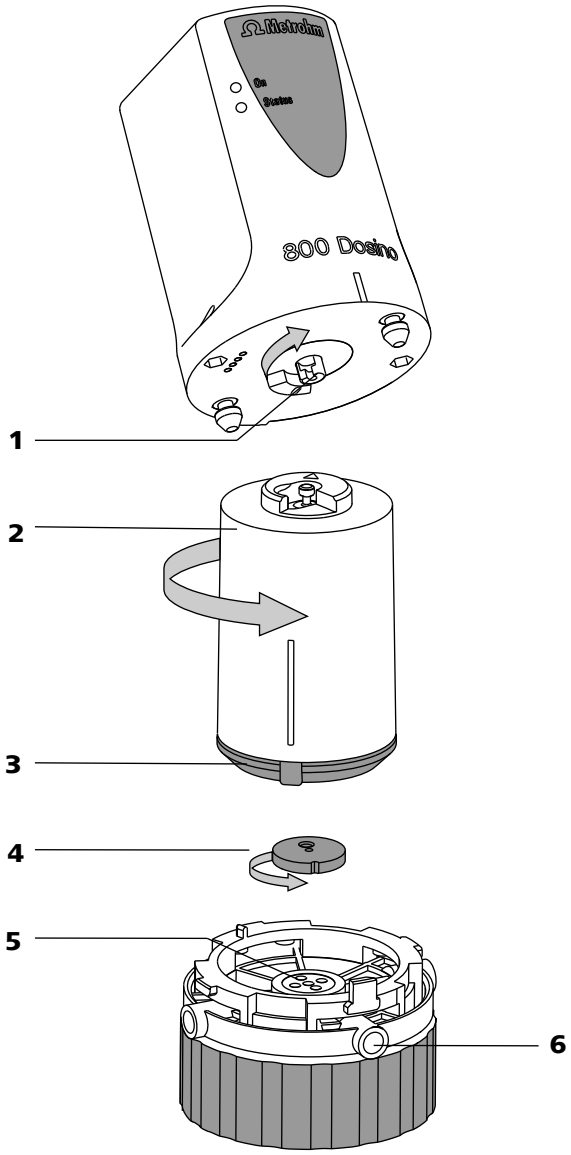


Figure 7 Switching the stopcock

1	**Drive pin** For rotation of the stopcock.	**2**	**Centering tube**
3	**Cylinder base**	**4**	**Valve disk**
5	**Distributor disk**	**6**	**Distributor**

The 807 Dosing Unit has 4 ports. 2 of these are located on the outside and 2 on the underside of the distributor. Depending on the position of the black valve disk, a connection is set up between the cylinder and the opening of the white distributor disk associated with the port.

The attached dosing drive rotates the centering tube with the rotating drive pin and thus the entire interior cylinder element, with cylinder, cylinder base, and the valve disk mounted within.

The bore of the valve disk faces a different distributor disk opening after one rotation of the cylinder element. This means that a different port is selected for dosing or filling.

5.3 Port assignments

The distributor of an 807 Dosing Unit has 4 freely actuatable ports. An additional connector, the **VENT**-port *(see figure 8, page 20)*, leads directly to the underside of the distributor and cannot be actuated by the valve disk. The **VENT** port purges the supply bottle and can be equipped with an adsorber tube.

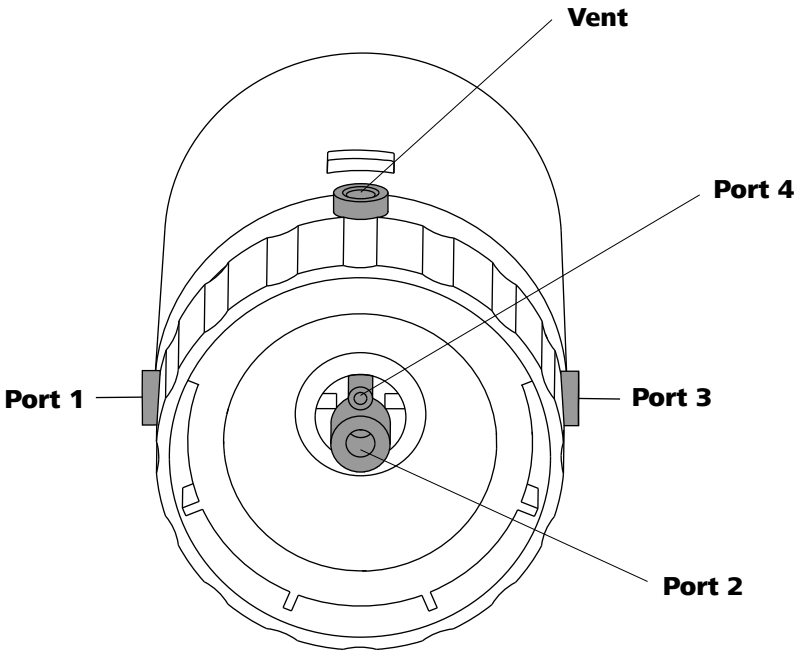


Figure 8 807 Dosing Unit from below

All ports of the 807 Dosing Unit can be used differently *(see chapter 5.4, page 21)*. This is an important precondition for complex liquid handling tasks. Titrandos use a standard port allocation that is the most suitable for titration tasks.

5.4 Standard port assignment

Port 1 — Dosing port. M6 connector on the left-hand side of the housing. The solution is ejected through a tubing tip.

Port 2 — Fill port. M6 connector on the underside of the 807 Dosing Unit. The solution is aspirated out of a supply vessel.

Port 3 — Not assigned. M6 connector on the right-hand side of the housing.

Port 4 — Special functions. Small diameter connection nipple on the underside of the 807 Dosing Unit. The port can be used with the **Preparing** function for ejecting the solution. Port 4 is used as an air inlet when the cylinder is being emptied.

VENT — Purging of the supply bottle. M6 connector at the front. An adsorber tube can be connected, filled with a molecular sieve or soda lime.

WARNING

If one of the ports numbered 1 to 3 is not used, then the port should be sealed with a threaded stopper (6.1446.040).

WARNING

Never close the **VENT** connector with a threaded stopper as soon as the 807 Dosing Unit is screwed onto a supply bottle, otherwise a vacuum may form in the supply bottle.

6 Operation

6.1 Attaching the 800 Dosino to the 807 Dosing Unit

The 800 Dosino can be attached to a 807 Dosing Unit in both switched-off and switched-on statuses.

Checking the position of the drive disk

1 Check whether the plastic rib on the drive disk is flush with the plastic rib on the underside of the dosing drive.

2 **NOTE**

The connected control device must be switched off to adjust the drive pin of the dosing drive.

If necessary, rotate the drive pin by hand until the plastic ribs are flush.

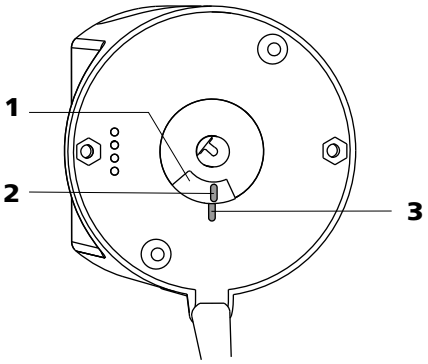


Figure 9 800 Dosino from below

1 Drive disk For the drive of the 807 Dosing Unit.	**2 Plastic rib** On the drive disk.
3 Plastic rib On the underside of the dosing drive.	

Checking the position of the centering tube

1 Check that the triangles on the centering tube and on the housing of the 807 Dosing Unit are exactly opposite one another.

2 If necessary, rotate the centering tube by hand until the triangles are in the correct position.

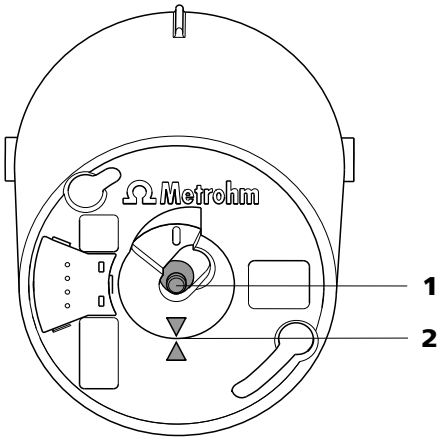


Figure 10 807 Dosing Unit from above

1 Centering tube	**2 Triangles**

Checking the position of the piston of the 807 Dosing Unit

1 Check whether the piston stopper is flush with the upper edge of the housing of the 807 Dosing Unit.

2 If the piston stopper is below the upper edge of the housing, then correct the position of the piston *(see "Adjusting the position of the piston", page 25)*.

3 If the piston stopper protrudes beyond the housing, then press the 807 Dosing Unit downwards in upside-down position on a flat surface until the piston stopper is flush with the upper edge of the housing.

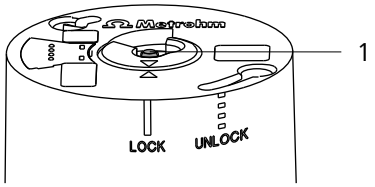


Figure 11 807 Dosing Unit from the side

1 Piston stopper

Attaching the 800 Dosino to the 807 Dosing Unit

1 Insert the guide bolts of the 800 Dosino into the openings of the 807 Dosing Unit provided for this purpose.

The green line marking of the 800 Dosino must be flush with the dotted white line marking ("UNLOCK") of the 807 Dosing Unit.

2 Rotate the 800 Dosino to the left until the green line marking of the 800 Dosino is flush with the solid white line marking ("LOCK") of the 807 Dosing Unit.

3 Check the correct seating of the 800 Dosino.

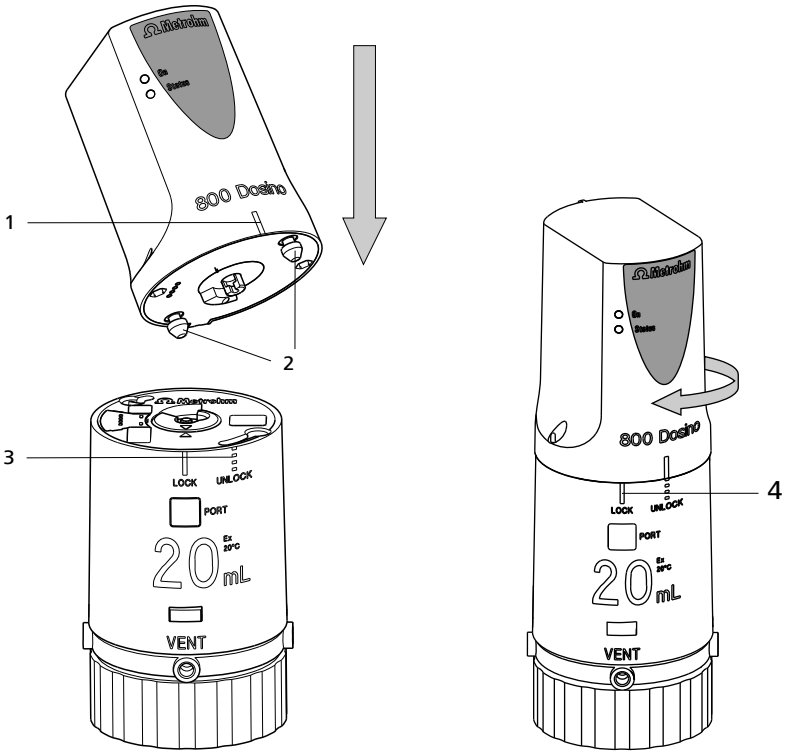


Figure 12 Attaching the 800 Dosino to the 807 Dosing Unit

1	**Green line marking**	**2**	**Guide bolts**
3	**"UNLOCK"**	**4**	**"LOCK"**

CAUTION

If the control device is switched on, then the "Status" LED of the 800 Dosino must light up after attaching the 807 Dosing Unit. If the "Status" LED does not light up, the dosing drive is not attached correctly.

6.2 Problems when attaching the 800 Dosino

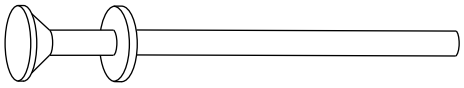
If the 800 Dosino cannot be attached ("Status" LED does not light up), then it could be that either the drive disk of the 800 Dosino or the centering tube of the 807 Dosing Unit is not in the exchange position (port 2) *(see figure 8, page 20)*. The drive pin of the 800 Dosino must fit into the recess on the 807 Dosing Unit intended for that purpose.

If the piston stopper is below the upper edge of the housing *(see "Checking the position of the piston of the 807 Dosing Unit", page 23)*, then the position of the piston must be corrected.

Adjusting the position of the piston

Required accessories:

- Piston tongs (6.1546.030)



1 Inserting the piston tongs

Insert the piston tongs into the cylinder opening.

2 Grasping the piston

- Press the plunger of the piston tongs down until 2 wire loops emerge from the piston tongs.
- Hold the plunger of the piston tongs pressed down and position the piston tongs so that the wire loops surround the piston stopper.
- Release the plunger of the piston tongs and check that the piston tongs are fully seated on the piston.

The piston tongs clasp the piston.

3 Positioning the piston

- Hold the 807 Dosing Unit firmly.

- Hold on to the plunger of the piston tongs and carefully pull up the piston until it stops.

4 **Removing the piston tongs**

Hold the plunger of the piston tongs pressed down and remove the piston tongs.

5 **Checking the position of the piston stopper**

- If the piston stopper protrudes beyond the housing, then place the 807 Dosing Unit on a flat surface with the housing facing downwards.
- Carefully push the 807 Dosing Unit vertically onto the support surface.

The piston stopper is positioned flush with the housing so that the 807 Dosing Unit can be attached.

6.3 Removing the 800 Dosino from the 807 Dosing Unit

CAUTION

The 800 Dosino can be removed from the 807 Dosing Unit only if the "Status" LED is continuously illuminated or if the control device is switched off.

The valve disk of the 807 Dosing Unit must be positioned at port 2 (fill port, exchange position) *(see figure 8, page 20)* and the piston must be in zero position. Otherwise the active process may need to be stopped and/or the 807 Dosing Unit may need to be filled.

Removing the 800 Dosino from the 807 Dosing Unit

1 Fill the 807 Dosing Unit.

The flat stopcock is then rotated automatically to the exchange position.

2 Check whether the "Status" LED of the dosing drive is lit up.

3 Rotate the 800 Dosino to the right until the green line marking of the 800 Dosino is flush with the dotted white line marking ("UNLOCK") of the 807 Dosing Unit.

Rotate the 800 Dosino to the right (in counterclockwise direction).

The dosing drive attached to the 807 Dosing Unit is unlocked.

4 Lift the 800 Dosino upward.

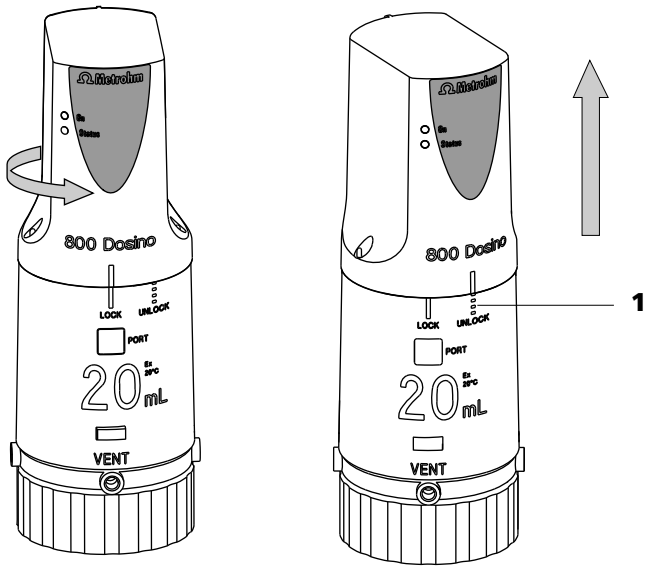


Figure 13 Removing the 800 Dosino from the 807 Dosing Unit

1 "UNLOCK" position

NOTE

Do not adjust the drive pin of the 800 Dosino and the centering tube of the 807 Dosing Unit when dismantled, as otherwise this will make it more difficult to attach the 807 Dosing Unit to the 800 Dosino afterwards.

6.4 Reagent replacement

As a rule, is not necessary to disassemble and clean the 807 Dosing Unit for a reagent replacement. The 807 Dosing Unit is constructed in such a way that only a small dead volume is present.

Reagent replacement with the 807 Dosing Unit

1 Empty the 807 Dosing Unit with the **Emptying** function of the control device.

2 Fill the 807 Dosing Unit with the **Preparing** function.

The **Preparing** function rinses the cylinder once before it is filled with reagent.

If additional rinses are required, then this function must be run again.

If there is a possibility of precipitation or chemical reactions occurring when used and fresh reagents are mixed, then Metrohm recommends intermediate flushing with an inert solvent.

NOTE

If a reagent is not used for more than 2 days, then rinse and empty the 807 Dosing Unit. Remove the dosing drive in the event of prolonged downtimes (>1 week).

6.5 Function of the LEDs

The 800 Dosino is equipped with 2 green LEDs that display the status of the dosing drive.

"On" LED

The upper LED displays the overall status of the 800 Dosino.

The LED lights up — The 800 Dosino is connected to a control device that is switched on.

The LED does not light up — The 800 Dosino is not connected or the control device is switched off.

CAUTION

The dosing drive is supplied with electricity for as long as the "On" LED is lit. Even if the 800 Dosino is not attached to an 807 Dosing Unit, the drive pin on the underside of the dosing drive will still not be able to be adjusted by hand. If the drive pin is misaligned and it is therefore not possible to attach the 800 Dosino onto an 807 Dosing Unit, then the control device must be switched off. Manual adjustment of the drive pin is possible only if the "On" LED is **not illuminated**.

"Status" LED

The lower one of the two LEDs of the 800 Dosino shows the respective operating status of the dosing drive. The prerequisite for this is that the 800 Dosino is supplied with electricity and the "On" LED lights up.

The LED lights up	The 800 Dosino is attached to an 807 Dosing Unit and ready for operation. It is only in this status that the 800 Dosino can be removed from the 807 Dosing Unit.
The LED does not light up	The 800 Dosino is either not attached or not correctly attached to an 807 Dosing Unit.
The LED flashes slowly	The 800 Dosino is in operation. The dosing drive doses, fills, is in waiting mode or is currently extracting the data from the memory chip of the 807 Dosing Unit.
The LED flashes fast	The 800 Dosino has detected a malfunction. This could involve, for example, a blocked valve disk, a blocked piston or problems reading from or recording on the memory chip of the 807 Dosing Unit.

7 Operation and maintenance

7.1 General notes

7.1.1 Care

In contrast to the 807 Dosing Unit, the 800 Dosino requires no special care. Nevertheless, the 800 Dosino must not be exposed to any excessive contamination nor to any corrosive influences. This could result in functional disruptions and a reduction in the service life of the mechanical and electronic components.

Metrohm recommends monthly inspections in the event that alkaline, corrosive or high-concentration reagents are used. If non-problematic reagents are used, then the inspection intervals can be extended to between 6 and 12 months.

CAUTION

The piston burets of the 807 Dosing Unit type must be monitored and cleaned at regular intervals.

WARNING

If aggressive reagents are used for dosing, and if the 807 Dosing Unit is not being used, then rinse it with an inert solvent and then empty it afterwards. Remove the dosing drive in the event of prolonged downtimes (longer than one week).

CAUTION

To prevent serious damage to the instrument electronics, the power plug of the control device should be unplugged immediately in the event of aggressive media seepage into the interior of the device. In such cases, inform the regional Metrohm service representative.

7.1.2 Maintenance by the regional Metrohm service representative

Maintenance of the 800 Dosino is best carried out as part of an annual service, which is performed by specialist personnel of the Metrohm company. A shorter maintenance interval may be necessary if you frequently work with caustic or corrosive chemicals.

The regional Metrohm service representative offers every form of technical advice for maintenance and service of all Metrohm devices.

7.2 GLP - Validation

Every 800 Dosino and every 807 Dosing Unit manufactured by Metrohm is subjected to rigorous quality controls prior to shipment. Every 807 Dosing Unit is issued a quality certificate attesting conformance with the strict quality criteria of Metrohm. **GLP** (**G**ood **L**aboratory **P**ractice) requires, among other things, periodic inspection of analytical measuring instruments with respect to precision and correctness on the basis of standard operating procedures (**S**tandard **O**perating **P**rocedure, **SOP**). This may also include a check of dosing accuracy.

The regional Metrohm service representatives worldwide offer the possibility of on-site inspections and certifications of devices of the 800 Dosino type and piston burets of the 807 Dosing Unit type with respect to accuracy. Metrohm recommends an accuracy inspection whenever a cylinder and/or a piston of an 807 Dosing Unit has been replaced.

Piston burets of the 807 Dosing Unit type with glass cylinders can be inspected according to the standard **Piston-operated volumetric apparatus - Part 3: Burets (ISO 8655-3:2022)**.

8 Troubleshooting

8.1 Problems

Problem	Cause	Remedy
The 800 Dosino cannot be actuated by the control device.	*The connection between 800 Dosino and control device is interrupted or an error has occurred on the 800 Dosino.*	▪ Check the cable connections. ▪ Switch the control device off and then back on again. ▪ Check the dosing rate and filling rate. ▪ Contact the regional Metrohm service representative.
The 800 Dosino cannot be attached to the 807 Dosing Unit.	*The drive pin of the dosing drive is misaligned.*	▪ Switch the control device off and then back on again. ▪ If the drive pin does not rotate into starting position automatically at this time, then switch the control device off again. Rotate the drive pin by hand so that the marking rib on the drive disk is flush with the marking rib on the underside of the 800 Dosino.
	The centering tube is misaligned.	Rotate the centering tube of the 807 Dosing Unit by hand so that the triangles on the centering tube and on the housing of the 807 Dosing Unit are exactly opposite one another.
	The piston is misaligned. The piston stopper must be flush with the housing.	▪ If the piston stopper is below the upper edge of the housing, then correct the position of the piston *(see "Adjusting the position of the piston", page 25)*. ▪ If the piston stopper protrudes beyond the housing, then press the 807 Dosing Unit downwards in upside-down position on a flat surface until the piston stopper is flush with the upper edge of the housing.
	The push rod of the dosing drive is misaligned.	Attach the dosing drive to an empty 807 Dosing Unit and execute the **Filling** function.
The 800 Dosino cannot be removed from the 807 Dosing Unit.	*The piston and/or stopcock are not in exchange position.*	▪ Perform the **Filling** function on the control device. ▪ Check the cable connections to the control device.

Problem	Cause	Remedy
		▪ Switch the control device off and then back on again. ▪ Rotate the dosing drive on the 807 Dosing Unit to the left until it stops.
	The 807 Dosing Unit is jammed because the valve disk and the distributor disk stick together or because the piston is damaged.	**Attention**: Chemicals in the 807 Dosing Unit may leak and cause chemical burns. Improper opening of a cylinder filled with chemicals could damage the 807 Dosing Unit and/or the dosing drive. The housing of the dosing drive is not permitted to be opened, because the control electronics of the dosing drive is readily vulnerable to mechanical damage. 1. Switch off the control device. 2. Remove the distributor: a. Press the unlocking button of the 807 Dosing Unit and hold it down. b. Rotate the housing counterclockwise. c. Release the unlocking button and carefully remove the distributor downwards. 3. Turn the 800 Dosino connected to the housing and the cylinder element of the 807 Dosing Unit upside down. 4. Switch on the control device and start the **Filling** function. 5. Attach the distributor: a. If the valve disk rotates audibly, then insert the distributor of the 807 Dosing Unit into the housing so that the marking ribs on the housing and on the centering tube are aligned with the marking rib on the edge of the distributor. b. Hold on the housing and rotate the distributor clockwise until the housing snaps into place. 6. Remove the 800 Dosino from the 807 Dosing Unit *(see chapter 6.3, page 26)*.

Problem	Cause	Remedy
		If the 800 Dosino still cannot be removed, then contact your regional Metrohm service representative.
The 807 Dosing Unit does not dose.	*The tubing connections are blocked or the 807 Dosing Unit is not assembled correctly.*	▪ Check whether the dosing tip is blocked. ▪ Check whether the dosing port is sealed off with a stopper. ▪ Check whether the **VENT** port is sealed off with a stopper (vacuum in the supply bottle). The **VENT** port must be open. ▪ Remove the dosing drive and check whether the piston is connected to push rod of the dosing drive. The piston stopper must be flush with the upper side of the housing.
The 807 Dosing Unit is recognized either not at all or incorrectly.	*The dosing drive was not attached correctly.*	▪ Remove the dosing drive and attach it again. ▪ Check whether the dosing drive is correctly seated. ▪ Switch the control device off and then back on again. ▪ Contact the regional Metrohm service representative.
The data of the 807 Dosing Unit cannot be read.	*The memory chip of the 807 Dosing Unit is mechanically damaged or impaired by chemicals.*	▪ Remove the dosing drive and attach it again. ▪ Clean the memory chip and the contact surfaces. ▪ Have the memory chip replaced by the regional Metrohm service representative.
The dosing drive becomes hot.	*The dosing drive is overloaded. The valve disk or piston is jammed.*	▪ Switch off the device immediately. ▪ Disassemble the 807 Dosing Unit and clean all single parts (see *807 Dosing Unit manual*). Replace defective parts.
The drive pin on the dosing drive rotates without interruption	*The electronics of the 800 Dosino are damaged.*	Contact the regional Metrohm representative.
The entire system is blocked	*The 800 Dosino or the control device are in an exceptional error state.*	▪ Check the cable connections. ▪ Switch the control device off and then back on again.

Problem	Cause	Remedy
		▪ Remove the dosing drive from the 807 Dosing Unit. Check whether the drive pin of the dosing drive can be rotated when the device is switched on. – If yes, then the drive pin is defective. – If not, disassemble the 807 Dosing Unit and clean the valve disk in the cylinder base (see *807 Dosing Unit manual*).

9 Appendix

9.1 Memory chip

The 807 Dosing Unit is equipped with a memory chip which contains the specifications for the 807 Dosing Unit, the tubing connections, and the reagent used.

Specifications for the 807 Dosing Unit and the tubing connections

- Order number of the 807 Dosing Unit
- Serial number of the 807 Dosing Unit
- Serial number of the cylinder
- Tubing length and tubing diameter at the ports
- Validation date
- etc.

Indications on the reagent

- Name of the reagent
- Titer of the reagent
- Concentration of the reagent
- Manufacturing date and expiry date of the reagent
- etc

The 800 Dosino makes it possible to read and record data with the aid of a suitable device (e.g., Titrando). Whether the control device is capable of this can be found in the respective manual. The contact surfaces for data exchange with the memory chip are made of titanium and are exceptionally resistant to both chemicals and abrasion.

CAUTION

The contact surfaces must not become contaminated. Wipe off any contaminations at once. In the event of more serious contamination, the underside of the 800 Dosino can be cleaned with a moist cloth (possibly with a small amount of dishwashing detergent or ethanol).

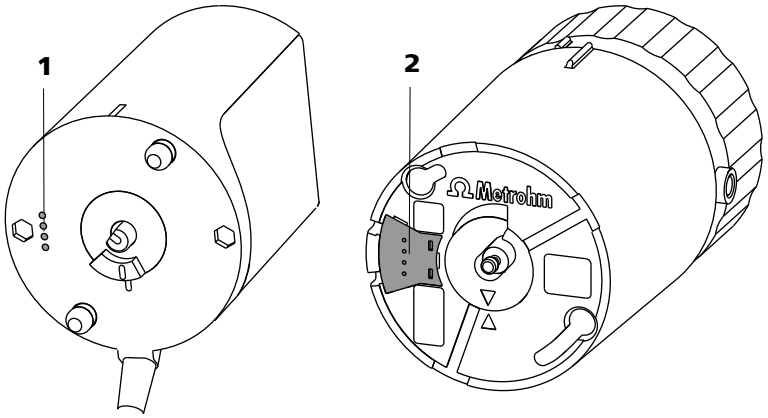
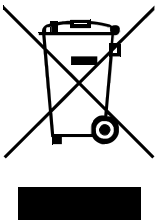


Figure 14 Memory chip and contact pin

1 Contact surface
On the 800 Dosino.

2 Memory chip with contact pins
On 807 Dosing Unit.

10 Recycling and 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.

11 Technical specifications

11.1 Dosing drive

Resolution	10,000 steps per cylinder volume
807 Dosing Unit	
Cylinder volume	▪ 2 mL ▪ 5 mL ▪ 10 mL ▪ 20 mL ▪ 50 mL
Dosing times/ filling times	18 seconds each per cylinder volume
Accuracy	Fulfills ISO/DIN standard 8655-3

11.2 Energy supply

from control device	±12 V, 5 V, 6 W
Dosing device connector	Mini DIN plug, 8-pin

11.3 Ambient temperature

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)

11.4 Dimensions and material

Height	98 mm
Width	67 mm
Depth	83 mm
Weight	approx. 410 g
Material of the housing	PBT (poly(butylene terephthalate))

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