IC equipment

IC equipment: Dose-in Gradient (6.5330.150)

Manual

8.110.8032EN / v2 / 2024-07-02

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Technical Communication
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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.

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1 Introduction

1.1 Description of the IC equipment: Dose-in Gradient

You can upgrade an isocratic IC system to a gradient system very easily with an IC equipment: Dose-in Gradient. A gradient is created by mixing different eluents at a mixing ratio that varies over the analysis time.

An 800 Dosino doses a concentrated or diluted eluent into the main eluent stream at a defined ratio. This changes the total concentration of the mobile phase. The result is an optimum separation of all ions within an acceptable analysis time.

What sets the Dose-in Gradient apart, is that it can be built into any existent Metrohm IC system and can be used without restrictions. It can, of course, also be included in the system setup from the beginning.

Another function of the Dose-in Gradient allows you to add a rinsing solution without modifying the system. It rinses the system after the analysis or after a sample series and thereby increases the service life of the individual components.

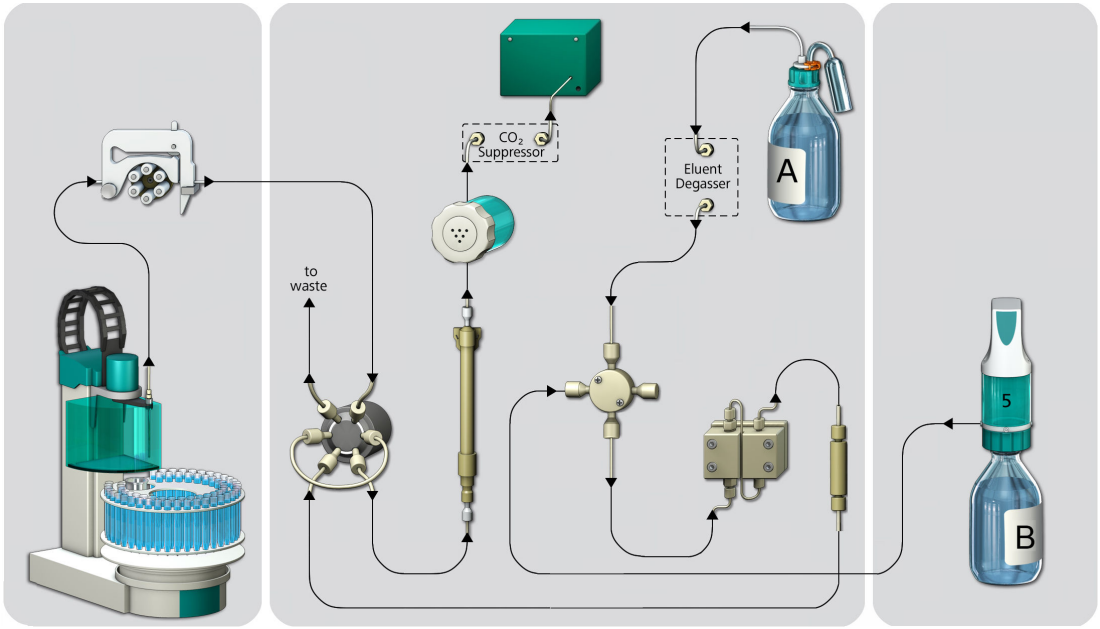


Figure 1 Overview Dose-in Gradient

1.2 About the documentation

This manual describes the installation of the IC equipment: Dose-in Gradient.

CAUTION

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

1.2.1 Symbols and conventions

The following symbols and formatting may appear in this documentation:

*(5-**12**)*	**Cross-reference to figure legend** The first number refers to the figure number, the second to the instrument part in the figure.
1	**Instruction step** 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 instruments or instrument parts.
	**NOTICE** This symbol highlights additional information and tips.

2 Overview

2.1 Parts of the IC equipment: Dose-in Gradient

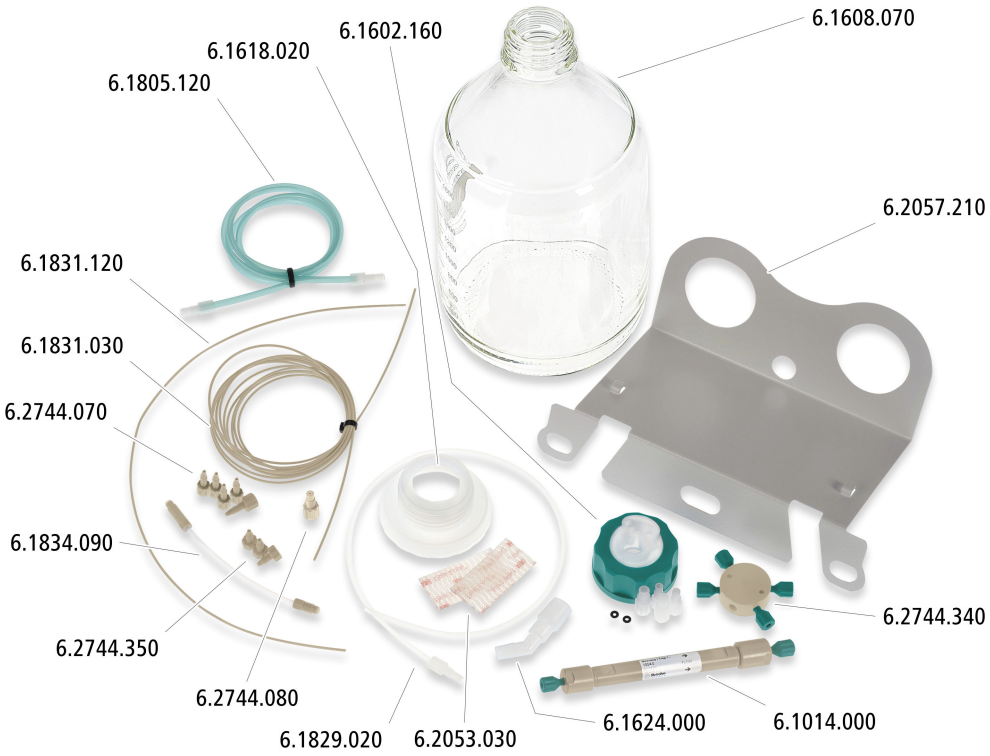


Figure 2 IC equipment: Dose-in Gradient – Parts

To create an eluent gradient, in addition to the IC equipment: Dose-in Gradient, you need:

- an 800 Dosino (2.800.0010)
- a suitable 807 Dosing Unit (6.1580.XX0)

3 Installation

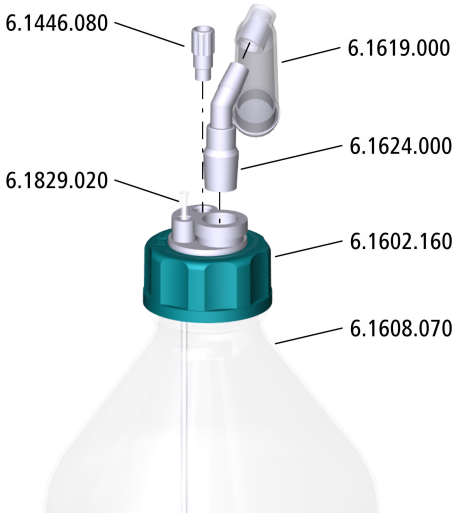
Proceed as follows to install the IC equipment: Dose-in Gradient:

- Equip the eluent bottle.
- Assemble the 800 Dosino and connect all tubings.

3.1 Equipping the eluent bottle

Required accessories

- Bottle (6.1608.070) filled with the additional eluent
- Eluent bottle cap (6.1602.160)
- Adsorber tube (6.1619.000)
- Adapter for adsorber tube (6.1624.000)
- FEP aspiration tubing (6.1829.020)
- M8 stopper (6.1446.080), included in the accessories for the eluent bottle cap (6.1602.160)



1 Mounting the aspiration tubing

- Remove the clamping screw from the aspiration tubing.
- Insert the aspiration tubing into the M6 opening of the eluent bottle cap from above.
- Use the capillary cutter to cut the aspiration tubing to such a length that it touches the bottom of the bottle.

2 Inserting the stopper

- Tighten the M8 stopper in the M8 opening of the eluent bottle cap.

3 Mounting the adsorber tube

- Fill the adsorber tube with some cotton and adsorber material.
- Place the adsorber tube onto the adapter.
- Insert the adapter into the SGJ opening of the eluent bottle cap.

4 Mounting the eluent bottle cap

- Screw the eluent bottle cap onto the bottle filled with the additional eluent.

3.2 Mounting the Dosino

Attaching the Dosino to the 807 Dosing Unit

Required accessories

- 800 Dosino (2.800.0010)
- 807 Dosing Unit without accessories (6.1580.XX0)

CAUTION

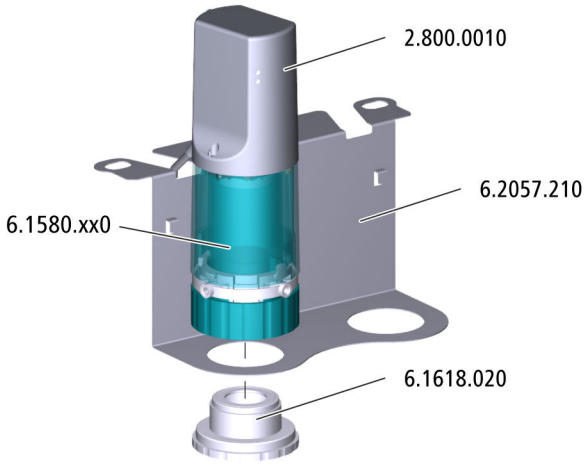
Please read through the correct procedure in the Manual for the 800 Dosino before you attach the Dosino to the 807 Dosing Unit.

1 Attach the Dosino to the 807 Dosing Unit, (*see Manual for the 800 Dosino*).

Fastening the Dosino to the ion chromatograph

Required accessories

- Dosino (2.800.010) with 807 Dosing Unit without accessories (6.1580.XX0)
- Dosino holder (6.2057.210)
- Thread adapter (6.1618.020)
- 3 mm hex key (6.2621.100)



1 Fitting the Dosino holder onto the ion chromatograph

- Loosen the bottle holder on the ion chromatograph using the hex key.
- Clamp the Dosino holder under it sideways.
- Fasten the bottle holder again.

2 Attaching the Dosino to the holder

- Place the Dosino onto the Dosino holder.
- Fasten the Dosino to the Dosino holder by tightening the thread adapter from below.

3 Connecting the Dosino to the ion chromatograph

NOTE

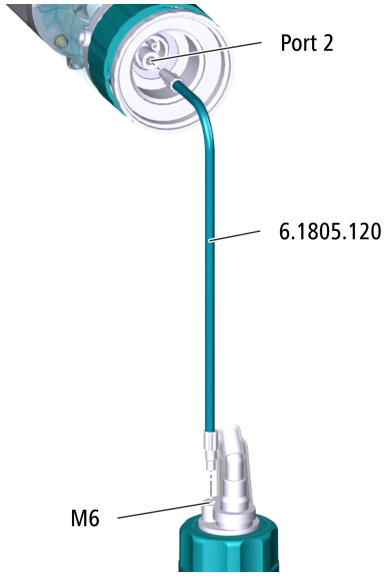
The ion chromatograph **must** be **switched off** when the Dosino is being plugged into the MSB connector.

- Check whether the ion chromatograph is switched on.
  If this is the case, switch off the ion chromatograph.
- Plug the Dosino cable into one of the ion chromatograph's MSB connectors.

3.3 Mounting the FEP tubing

Required accessories

- FEP tubing (6.1805.120)

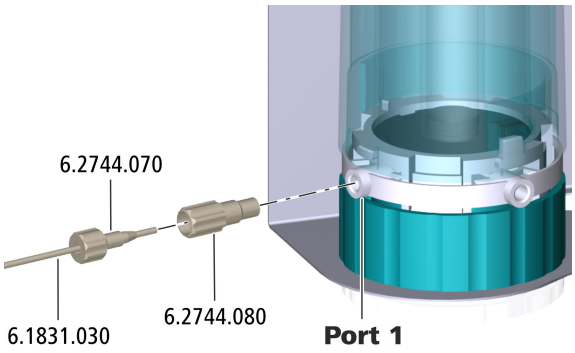


1
- Tighten one end of the FEP tubing in the M6 opening of the eluent bottle cap.
- Tighten the other end of the FEP tubing in port 2 of the Dosino.

3.4 Mounting the PEEK capillary

Required accessories

- PEEK capillary, 0.75 mm ID (6.1831.030)
- Pressure screws (6.2744.070)
- Coupling M6 / UNF (6.2744.080)



1
- Tighten the coupling to Port 1 of the Dosino.

2 ▪ Tighten one end of the PEEK capillary to the coupling using a pressure screw.

3.5 Installing the 6-port adapter

The 6-port adapter functions as mixing valve for the eluent gradient.

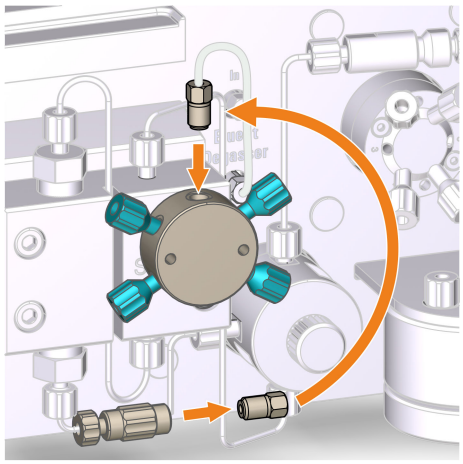
Proceed as follows to connect the 6-port adapter:

Connecting the 6-port adapter

Required accessories

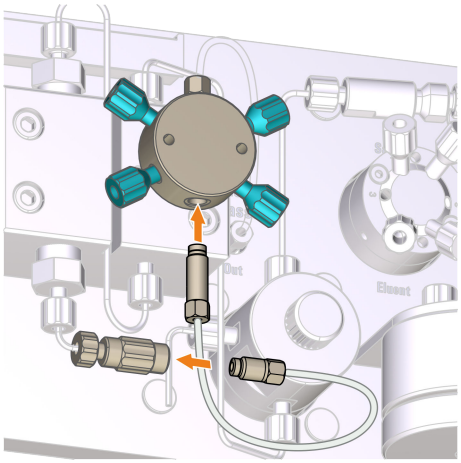
- 6-port adapter (6.2744.340)
- Tubing connection degasser – pump (6.1834.090)
- PEEK pressure screw, 14 mm (6.2744.350)
- PEEK capillary, 0.75 mm ID (6.1831.030), screwed onto the Dosino *(see chapter 3.4, page 8)*

1



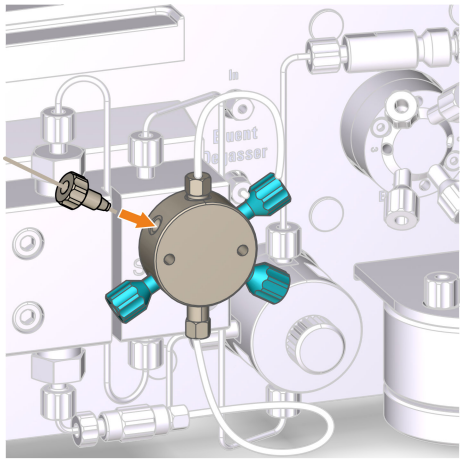
- Unscrew the tubing connection between the eluent degasser and the high-pressure pump at the inlet of the high-pressure pump.
- Tighten the end of the tubing connection to a UNF ¼"-28 port of the 6-port adapter.

2



- Tighten the short screw of the tubing connection to the coupling of the high-pressure pump.
- Tighten the long screw of the tubing connection to the second UNF ¼"-28 port of the 6-port adapter.

3 You will need the free end of the PEEK capillary that is attached to Port 1 of the Dosino for this step.

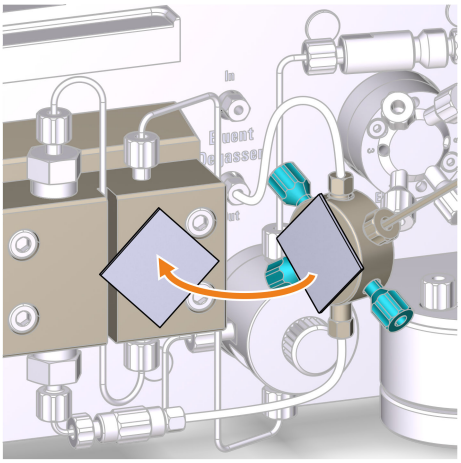


- Push the capillary into the instrument through the capillary feed-throughs.
- Remove the stopper from one of the four UNF 10/32 ports of the 6-port adapter.
- Tighten the end of the capillary to the 6-port adapter.

Mounting the 6-port adapter

Required accessories Self-adhesive hook-and-loop fastening tape (6.2053.030)

We recommend fastening the 6-port adapter to the high-pressure pump using the self-adhesive hook-and-loop fastening tape (6.2053.030).



1 Use scissors to cut the self-adhesive hook-and-loop fastening tape in half. (You need only one half to fasten the 6-port adapter.)

2 Tear the hook-and-loop fastener apart.

3 Stick one side onto the right half of the high-pressure pump.

NOTE

Make sure that the fastening screws of the high-pressure pump are not covered.

4 Stick the second side of the hook-and-loop fastening tape onto the 6-port adapter.

5 Fasten the 6-port adapter to the high-pressure pump.

NOTE

There is not much space between the high-pressure pump and the door. Therefore:

- mount the 6-port adapter on the far right.
- adjust the 6-port adapter so that the attached tubings and capillaries will not kink.

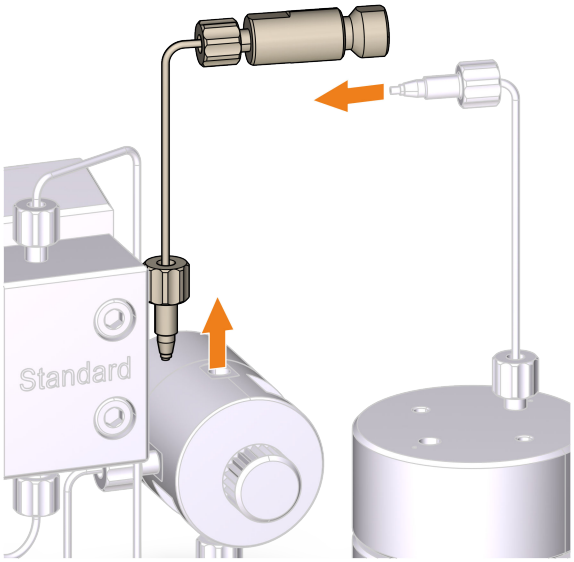
3.6 Installing the trap column

The high-capacity anion column is used to purify and mix the eluent flow. Even reagents of the highest quality level, e.g. "Ultrapur" or "puriss", can still contain minimal anion contaminations. These are reliably held back by the Metrosep A Trap 1 - 100/4.0. In the application described here, however, the trap column functions as mixer and ensures thorough mixing of the different media.

Install the trap column in place of the inline filter between the high-pressure pump and the pulsation absorber.

Removing the inline filter

1



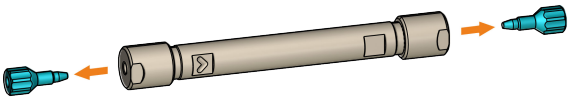
Remove the inline filter.

Installing the trap column

Required accessories

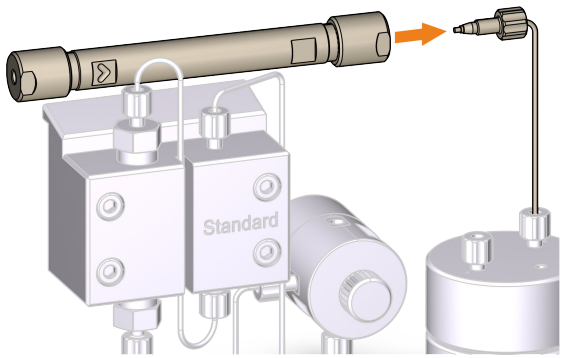
- Metrosep A Trap 1 - 100/4.0 (6.1014.000)
- PEEK capillary, 0.25 mm ID (6.1831.120)
- Pressure screws (6.2744.070)

1



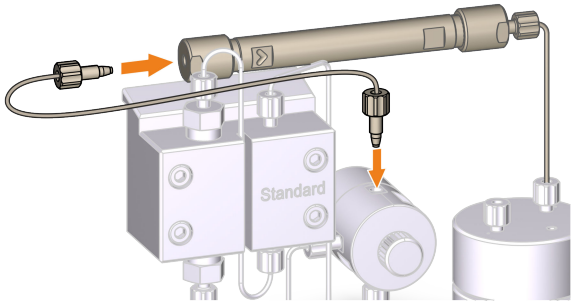
Remove the stoppers of the trap column.

2



Tighten the trap column outlet to the capillary leading to the pulsation absorber.

3



- Tighten one end of the PEEK capillary to the trap column inlet using a pressure screw.
- Tighten the other end of the capillary to the purge valve using a pressure screw.

4 Operation and maintenance

4.1 807 Dosing Unit without accessories (6.1580.XX0)

Maintenance work on the 807 Dosing Unit must be performed regularly. Information on the care and maintenance of the 807 Dosing Unit can be found in the Manual for the 807 Dosing Unit.

5 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.

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