

FLOW-THROUGH CELL COMPACT

OPERATING INSTRUCTIONS



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All it takes for environmental research

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On these operating instructions



When the symbol shown on the left is placed before a piece of text, this means that an important instruction follows.



When the symbol shown on the left is placed before a piece of text, this means that an important warning follows pointing out a risk of injury to the user or damage to the device. The user is always responsible for its own personal protection.

Text

Text in italics means that the actual text is shown on the display screen.

1. Introduction

The flow-through cell, type compact, was specially made in order to enable taking accurate in situ measurements of oxygen dissolved in water, temperature, electrical conductivity and parameters derived therefrom (EC, SAL, TDS). In addition, electrodes can be fitted in order to determine acidity (pH), oxidation reduction potential (redox, ORP) and possibly ion-selective measurements, such as nitrate.

Water streams in through a narrow slit in the base directly under the measuring part of the sensors and is sucked out at the top near the cover by syphonage. The small entry slit ensures the required in-streaming speed at the oxygen electrode, even with a low pump flow rate. At the top inside the flow-through cell the water comes into contact with air. However, the small volume and the narrow construction of the cell make sure that water only flows past the sensors from the bottom to the top, ensuring that water that is being measured has not been in contact with air. Accurate anaerobic measurements are the result, with a very short response time. Therefore the cell is ideal for measuring parameters in situ with so-called low flow turbidity sampling (also known as low flow purging or micro-purging).

The enclosed tubing clamp makes it possible to interrupt the flow of water, for example in order to conduct a pH measurement in still-standing water in accordance with local regulations.

The cell is equipped with six holes, so that electrodes with a diameter of up to 25.5 mm can be fitted. It can occur that the oxygen electrode or the EC electrode interferes with the mV measurement (=pH, redox or ion-selective) in meters for multiple parameters. This happens when the O₂ electrode is in the water-filled cell while a pH measurement is being taken. The value diverges strongly then. With these meters the electrodes must be placed in turn and not together. Meters 18.50 and 18.52 have separate openings and do not have this issue. With these meters you can also fit all the electrodes in the holder supplied with the meter and arrange all the electrodes down through the holes in the cover at once.



Never take samples from water that has been through the flow-through cell.



Cut off the piece of tubing connected to the pump but which was in contact with parts of the cell (silicon tubing or tubing connection). This prevents water samples taken after use of the cell from becoming contaminated.

2. Cleaning

- ☐ The use of a cloth or at most a soft brush is recommended, never a scouring sponge.
- ☐ Simple routine cleaning: pour in clean water through one of the larger holes in the cover. Then turn over the cell and shake it empty.
- ☐ If sand accumulates in the cell: unscrew the knob at the base and take the cell apart (two parts + two large O-rings). Rinse off and reassemble.

- ☐ Avoid oil or grease contamination, in particular of the electrodes. If oil or grease contamination has occurred rinse with baby shampoo (including the electrodes!). Rinse thoroughly with water.
- ☐ Serious contamination: spray with detergent, allow to work, then rinse off well.
- ☐ If the transparent part has become dull it can be made clear again with metal polish.



Never use a strong solvent like acetone.

3. Taking into use

- ☐ First unfold the legs straight down and then put them in the slanting position.
- ☐ The flow-through cell can then be put straight onto the ground.
- ☐ Place the smallest tubing nipple in the coupling below at the base of the cell.
- ☐ Slide the thinnest 6 x 8 mm silicon rubber tubing onto it.
- ☐ Place the larger tubing nipple in the coupling on top of the cover of the flow-through cell.
- ☐ Slide the 8 x 12 mm silicon rubber tubing onto it.
- ☐ Remove any protective caps from the electrodes and remove the plugs from the holes in the cover that you will be using.
- ☐ Store the plugs carefully, although the flow-through cell also functions and measures well with uncovered holes at the top. The electrodes can therefore stand 'freely' in a hole.
- ☐ Through the holes in the cover, slide the electrodes as deeply as possible into the cell in the middle above the out-flow slit.
- ☐ Slide the 6 x 8 mm silicon tubing onto the tubing leaving the pump.
- ☐ If you are going to pump with a higher flow rate than the cell can handle (around 2 litres per minute) then you must fit the T-piece to the 6 x 8 mm tubing. You then fit the tubing clamp between the T-piece and the tubing nipple at the base of the cell. You can then pinch the supply of water to the cell. The surfeit of water then flows out through the T-piece, without disrupting the measurements. If you are working with an even higher flow rate then you can discharge the excess of water outside the cell in a similar way but with a larger T-piece (not included).

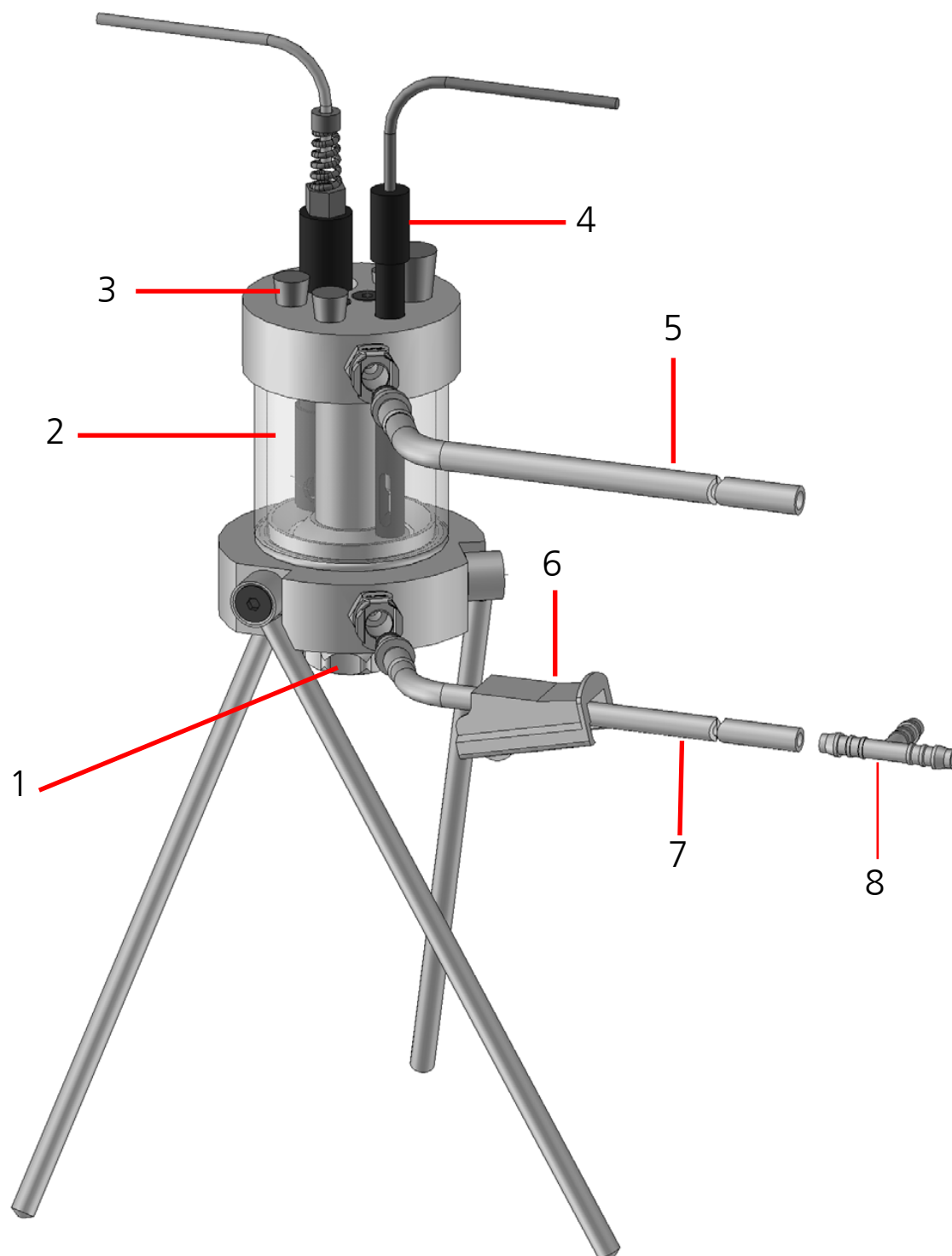
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Drawing flow-through cell compact



- 1. Knob
- 2. Transparant cylinder
- 3. Openings for electrodes
- 4. Electrode

- 5. Outlet tube
- 6. Adjustable pinch clamp
- 7. Inlet tube
- 8. T-piece for outflow when pumping at higher rate

Diameter openings for electrodes

