



Level



Pressure



Flow



Temperature



Liquid
Analysis



Registration



Systems
Components



Services

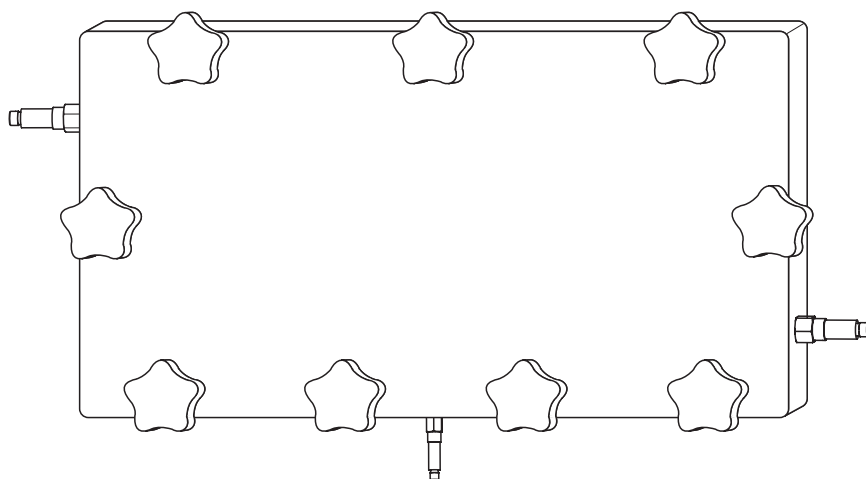


Solutions

Operating Instructions

Stamoclean CAT411

Crossflow filter



Brief overview

→  4

→  5

Safety instructions

General safety instructions

Explanation of the warning symbols

You can find special instructions at the appropriate position in the chapter in question. The positions are indicated with the icons Warning , Caution  and Note .



→  8

→  8

Installation

Dimensions

The steps for the installation can be found here.



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Maintenance

For normal operation, it is absolutely essential to carry out maintenance tasks on a regular basis, such as filter cleaning etc.

Sealings are subject to normal wear and tear. Here you can find out how to replace them.



→  13

Technical data

Process conditions and mechanical construction



→  14

Index

You can find important terms and keywords on the individual sections here. Use the keyword index to find the information you need quickly and efficiently.

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1 Safety instructions

1.1 Designated use

1.1.1 Application

The CAT411 micro filter is a special cross flow filter for sampling for continuous on-line monitoring from pressure pipes.

A self cleaning effect results from the medium flow at the filter.

Applications are:

- Sewage treatment plant
 - Return activated sludge up to 4 g/l dry substance
 - Waste activated sludge up to 4 g/l dry substance
 - Secondary clarifier
- Industry
 - Pre-pressure to filter from 0.2 to 1 bar
 - Sampling in by-pass at upper pressure

1.1.2 Functional principle

A sample flow of 0.8 to 1.8 m³/h is continuously conducted through the micro filter via a pressure pipe. A part of the sample passes the filter membrane and is then conveyed to the measuring device as filtrate.

Sampling is based on the cross flow filtration principle. The PTFE filter membrane separates particles with sizes > 0.45 µm from the filtrate. These particles are collected in front of the membrane and are washed away with the sample flow.

The medium is conducted in a meander-like channel through the filter element. This results in a constantly high flow rate. The high flow rate generates the self cleaning effect. Therefore, mechanical drives for the generation of a flow at the filter surface are not necessary.

1.1.3 Exclusion of liability

Any other use than the one described here compromises the safety of persons and the entire measuring system and is, therefore, not permitted.

The manufacturer is not liable for damage caused by improper or non-designated use.

1.2 Installation, commissioning and operation

Please note the following items:

- Installation, commissioning, operation and maintenance of the measuring system must only be carried out by trained technical personnel.
The technical personnel must be authorised for the specified activities by the system operator.
- Electrical connection must only be carried out by a certified electrician.
- Technical personnel must have read and understood these Operating Instructions and must adhere to them.
- Before commissioning the entire measuring point, check all the connections for correctness. Ensure that electrical cables and hose connections are not damaged.
- Do not operate damaged products and secure them against unintentional commissioning. Mark the damaged product as being defective.
- Measuring point faults may only be rectified by authorised and specially trained personnel.
- If faults can not be rectified, the products must be taken out of service and secured against unintentional commissioning.
- Repairs not described in these Operating Instructions may only be carried out at the manufacturer's or by the service organisation.

1.3 Operational safety

The sample preparation unit has been designed and tested according to the state of the art and left the factory in perfect functioning order.

Relevant regulations and European standards have been met.

As the user, you are responsible for complying with the following safety conditions:

- Installation instructions
- Local prevailing standards and regulations.

1.4 Return

If the device requires repair, please send it *cleaned* to the sales centre responsible. Please use the original packaging, if possible.

Please enclose the completed "Declaration of contamination" (copy the second last page of these Operating Instructions) with the packaging and the transportation documents.

No repair without completed "Declaration of contamination"!

1.5 Notes on safety icons and symbols



Warning!

This symbol alerts you to hazards. They can cause serious damage to the instrument or to persons if ignored.



Caution!

This symbol alerts you to possible faults which could arise from incorrect operation. They could cause damage to the instrument if ignored.



Note!

This symbol indicates important items of information.

2 Identification

2.1 Device designation

2.1.1 Product structure

Version		
	A	Filter unit for wall mounting only
	B	Filter unit in GFK housing ¹⁾
	C	Filter unit with bypass assembly on PVC plate
	Y	Special version acc. to customer's specification
CAT411 -		complete order code

¹⁾ GFK = fibre glass reinforced plastic

2.2 Scope of delivery

The scope of delivery consists of:

- a sample preparation unit
- an activation reagent
- 2 PTFE filter membranes
- 2 Perbunan[®] sealings
- Operating Instructions, English

If you have any questions, please contact your supplier or your sales centre responsible .

3 Installation

3.1 Quick installation guide

A complete measuring system comprises:

- a micro filter Stamoclean CAT411
- a collecting vessel
- an CA 71XX analyser

Optionally, a sensor (CNS70/CSS70) with flow assembly can also be integrated into the measuring system.

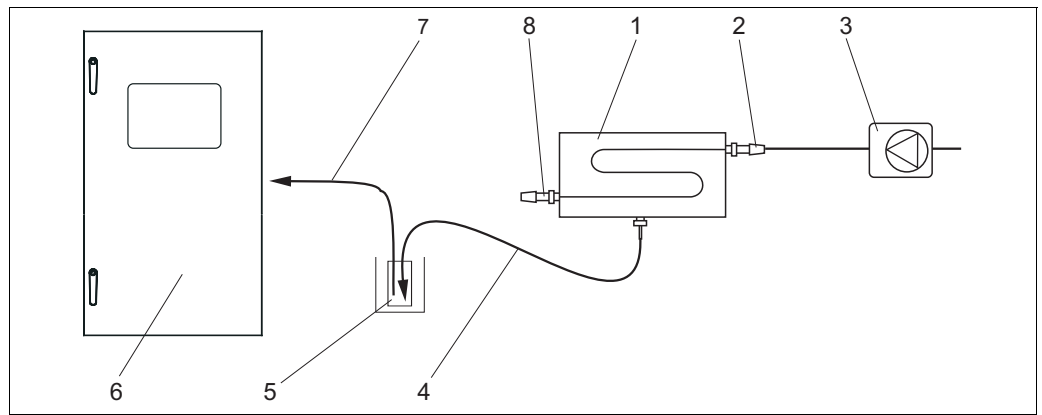


Fig. 1: Complete measuring system

1	CAT411	5	Collecting vessel (optionally)
2	Inlet	6	Analyser
3	Sample pump or pressure pipe	7	Sample line to the analyser
4	Filtrate line	8	Free outlet

3.2 Incoming acceptance, transport, storage

- Make sure the packaging is undamaged!
Inform the supplier about damage to the packaging.
Keep the damaged packaging until the matter has been settled.
- Make sure the contents are undamaged!
Inform the supplier about damage to the delivery contents.
Keep the damaged products until the matter has been settled.
- Check that the scope of delivery is complete and agrees with your order and the shipping documents.
- The packaging material used to store or to transport the product must provide shock protection and humidity protection. The original packaging offers the best protection. Also, keep to the approved ambient conditions (see "Technical data").
- If you have any questions, please contact your supplier or your sales centre responsible.

3.3 Installation conditions

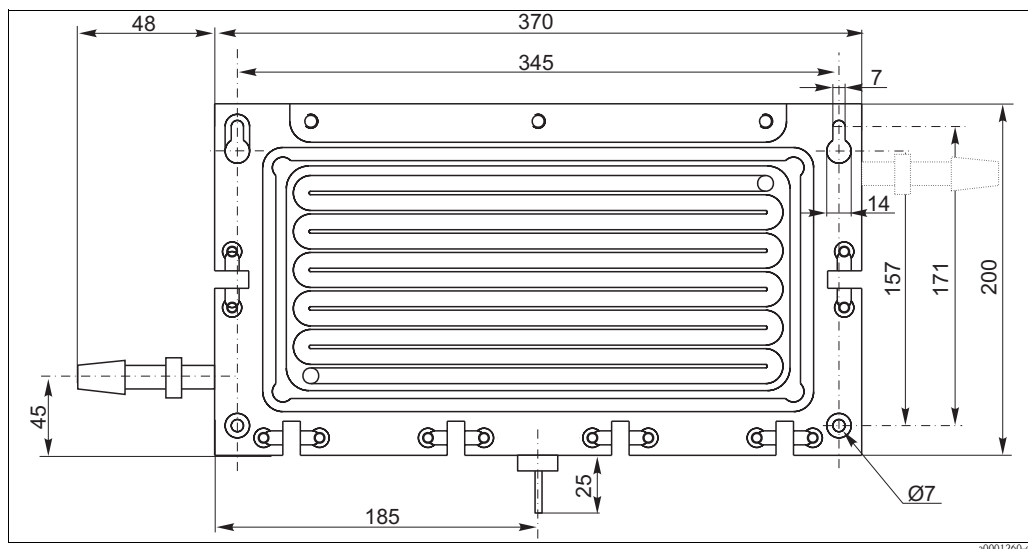


Fig. 2: Dimensions

3.4 Installation instructions

3.4.1 Wall mounting



Note!

You need a hammer drill with a 6 mm drill.

The wall plugs and screws are not included in the scope of delivery and must be provided by the client.

Secure the filter holder as follows:

1. Make four bores $\varnothing$ 6 mm in the wall. Please see the diagram in the previous section for information on the distance of the bores ("Installation").
2. Remove the top part of the filter holder:
 - a. Loosen all star grips slightly.
 - b. Fold the side and bottom grips to the side ($\rightarrow$  3).
 - c. Remove the top part ($\rightarrow$  4, item 3) from the remaining threaded joints and place it to the side where it is still accessible.
3. Secure the bottom part (item 1) of the holder to the wall with appropriate screws.

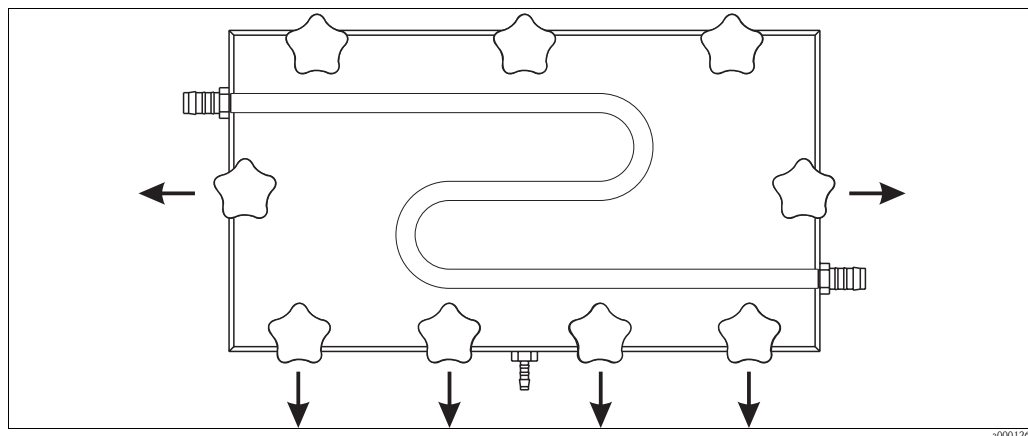


Fig. 3: Loosening the set screws

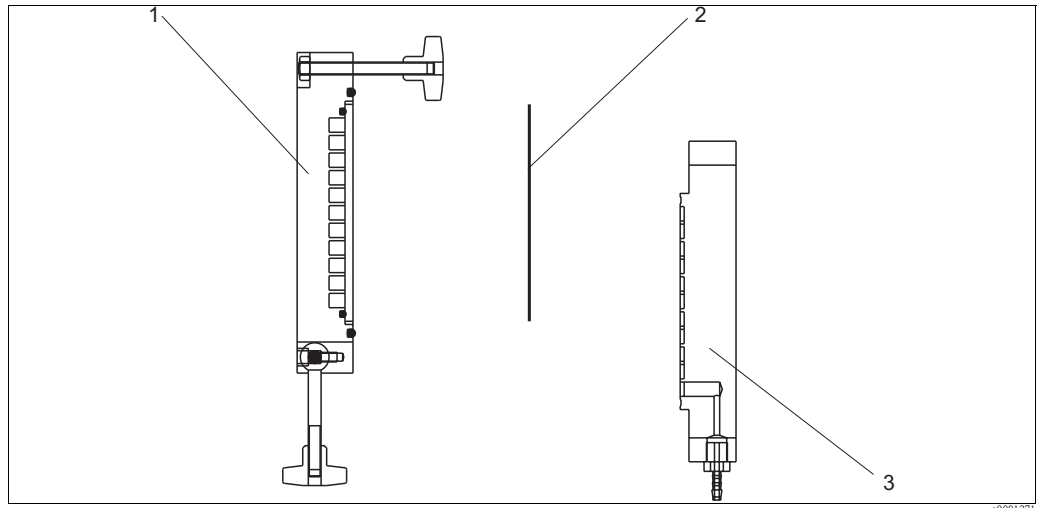


Fig. 4: Structure

- 1 Bottom part
- 2 Membrane
- 3 Top part

3.4.2 Installing the filter membrane



Note!

Two filter membranes are included in the scope of delivery. You only need one such membrane for correct operation. The other is a spare.

Activating the membrane

1. Remove the filter membrane from the packaging.
2. Coat the membrane on the smooth side (medium side) with the activating reagent.

Inserting the membrane → 5

- a. Insert the membrane into the bottom part of the filter holder which is still open after wall mounting. The smooth side of the membrane must face downwards (facing the bottom part = medium side).
- b. Re-insert the top part of the filter holder.
- c. Fold up the star grips again.
- d. Tighten the star grips hand-tight.

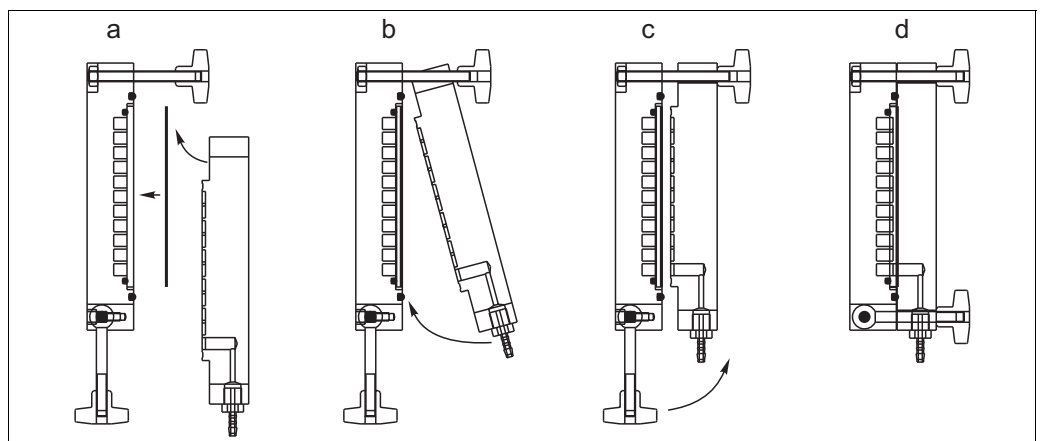


Fig. 5: Inserting the membrane

3.4.3 Connections

1. Connect the sample line (ID 14 mm) to the infeed of the microfilter (at the top of the filter holder).
2. Leave the outlet (ID 14 mm) free.
3. Screw the hose connection nipple for filtrate outflow into the thread at the bottom of the filter holder.
4. Connect the filtrate line (ID 4 mm).
5. Connect the other end of the filtrate tube to the inlet of the collecting vessel of the analyzer.

3.5 Post-installation check

- After installation, check that all connections are fitted tightly and are leakage resistant.
- Ensure that the hoses cannot be removed without effort.
- Check all hoses for damage.

4 Maintenance

4.1 Cleaning

The microfilter can be cleaned when closed (rough cleaning) or when open. For cleaning purposes, treat the surface of the filter membrane with hydrochloric acid **or** sodium hypochlorite solution.



Warning!

Extremely caustic!

- Never use hydrochloric acid and sodium hypochlorite together (in a mixture) as this causes a toxic chlorine gas to form!
- If necessary, use hydrochloric acid and sodium hypochlorite in separate cleaning stages. In this situation, rinse thoroughly with water between the cleaning stages before using the second cleaner.
- Make sure to wear safety gloves and safety goggles when working with hydrochloric acid or sodium hypochlorite!
- Dispose of the cleaning agents in accordance with local or national regulations.

4.1.1 Cleaning the closed filter holder

1. Interrupt the sample supply and disconnect the filtrate line from the collecting vessel.
2. Fill the microfilter with cleaner manually or by using an automatic cleaning unit. Allow the cleaner to react for approx. 20 minutes.
3. Then rinse well with plenty of water.
4. Re-establish the sample supply and reconnect the filtrate line to the collecting vessel.



Note!

The cleaning described above is a rough cleaning process. For intensive cleaning, you must open the filter holder, see next section.

4.1.2 Cleaning the opened filter holder

1. Interrupt the sample supply and disconnect the filtrate line from the collecting vessel.
2. Open the filter holder at the star grips and remove the top part and the filter membrane. Make sure that the top part does not come into contact with unfiltered media.
3. Remove any contamination and clogged material in the bottom part (medium side).
4. Remove any build-up on the filtrate side (top part).
5. Clean the filter membrane. Replace the membrane if necessary.
 - ☞ **Caution!**
 - Do not damage the filtration layer of the membrane!
 - When cleaning the unit, do **not** use any hard or pointed instruments, e.g. spatula or screwdriver.
6. Reinsert the membrane and the top part and tighten the star grips.
7. Reestablish the sample supply and reconnect the filtrate line to the collecting vessel.

4.2 Replacing the sealings

If you find that the seals are damaged when you open the filter holder, then you must replace these seals:

- 1. Remove the damaged seal from the guide in the bottom part of the filter holder (→  6).
- 2.
 - a. Fit the filtrate seal (item 2, thin sealing ring, Ø 4 mm) into the guide so that both ends are flush mounted.
 - b. Fit the seal for the top/bottom part (item 1, thick sealing ring, Ø 5 mm) into the outer guide.
- 3. Reassemble the filter holder together with the filter membrane and tighten the star grips.

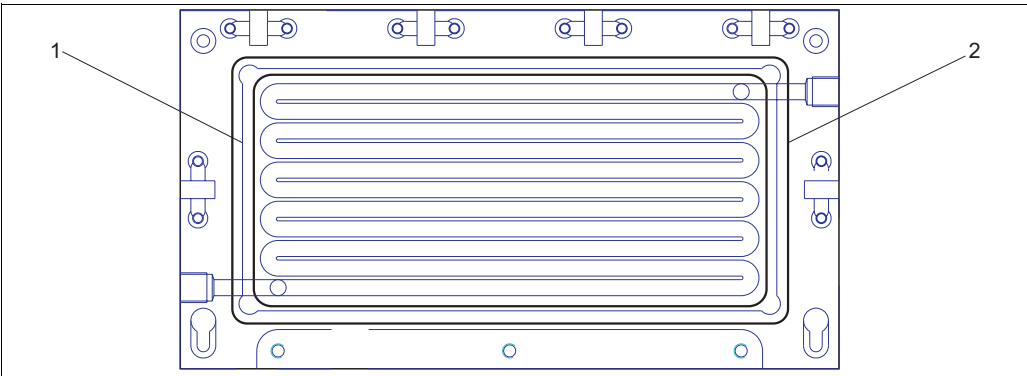


Fig. 6: Seals
1 Seal for top part/bottom part
2 Seal for filtrate chamber

4.3 Spare parts

Spare part	order no.
Kit CAT411, hoses and connectors	51511474
Kit CAT411, membranes, 2 pieces	51511288
Kit CAT411, sealings	51516465

5 Technical data

5.1 Process

Sample temperature	5 ... 50 °C
Sample pressure	0.2 ... 1 bar
Flow rate	2.5 ... 5.5 m/s
Sample capacity	0.8 ... 1.8 m ³ /h

5.2 Mechanical construction

Design, Dimensions	see chapter "Installation conditions"	
Weight	approx. 3 kg	
Materials	Housing CAT 411 Fastening screws Seals Filter membrane	POM Stainless steel Perbunan® PTFE
Channel profile	9 x 10 mm	
Filter pore size	0.45 µm	
Process connection	Inlet and outlet Filtrate outlet	Hose nozzle for ID 14 mm (0.55") Hose nozzle for ID 4 mm (0.16")

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Declaration of contamination

Dear customer,

Because of legal determinations and for the safety of our employees and operating equipment, we need this "Declaration of contamination" with your signature before your order can be handled. Please, include the completely filled in declaration with the device and the shipping documents in any case. Add also safety sheets and / or specific handling instructions if necessary.

Type of device / sensor:	_____	Serial no.:	_____
Medium / concentration:	_____	Temperature:	_____ Pressure: _____
Cleaned with:	_____	Conductivity:	_____ Viscosity: _____

Warning hints for medium used (mark the appropriate hints)



☐
radioactive



☐
explosive



☐
caustic



☐
poisonous



☐
harmful to
health



☐
biologically
hazardous



☐
inflammable



☐
safe

Reason for return

Company data

Company:	_____	Contact person:	_____
	_____		_____
	_____	Department:	_____
Address:	_____	Phone:	_____
	_____	Fax / e-mail:	_____
	_____	Your order no.:	_____

I hereby certify that the returned equipment has been cleaned and decontaminated acc. to good industrial practices and is in compliance with all regulations. This equipment poses no health or safety risks due to contamination.

(Place, date)

(Company stamp and legally binding signature)

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