

Technical Information  
 TI 338C/07/en/11.01  
 No. 51508729

# Micro/Ultra Filtration System *StamoClean CAT 430*

**Long-term stable membrane filter for immersion  
 operation in activated sludge basins or wastewater**



## Application

The CAT 430 is a patented ultra filtration system for process instruments in sewage treatment plants. CAT 430 can be used for all Endress+Hauser analyzers.

CAT 430 transports clear samples from the activated sludge basin to the measuring devices. Wastewater transportation is no longer necessary. Applications are:

- In activated sludge basins
- Outlets of sewage treatment plants

## Your benefits

- Ultra filtration without the disadvantages of conventional ultra filtration
- No additional pump necessary
- Minimum energy consumption
- Minimum maintenance required
- Filtrate quantity can be optimised by number of filter elements
- Minimum dead volume.  
 You measure the current value.
- Large carrying distance up to 100 m
- Cleaning without chemicals

**Endress + Hauser**

The Power of Know How



## Function and System Design

### Function

The centrepiece of the system is a flat membrane filter element which is suspended directly in the wastewater basin or channel. A hose pump, located in a pump box on the rim of the basin, is connected to the filter element by means of a thin PE tube. The pump creates a vacuum between the membrane and the carrier plate of the filter element. This vacuum causes the filtrate to pass through the filter membrane. Suspended materials, particles, algae and bacteria are collected on the surface of the membrane. However, thanks to constantly alternating pumping action and intervals, the layer on the surface of the membrane is never allowed to build up which means that intervals of more than one month are achieved between cleaning cycles.

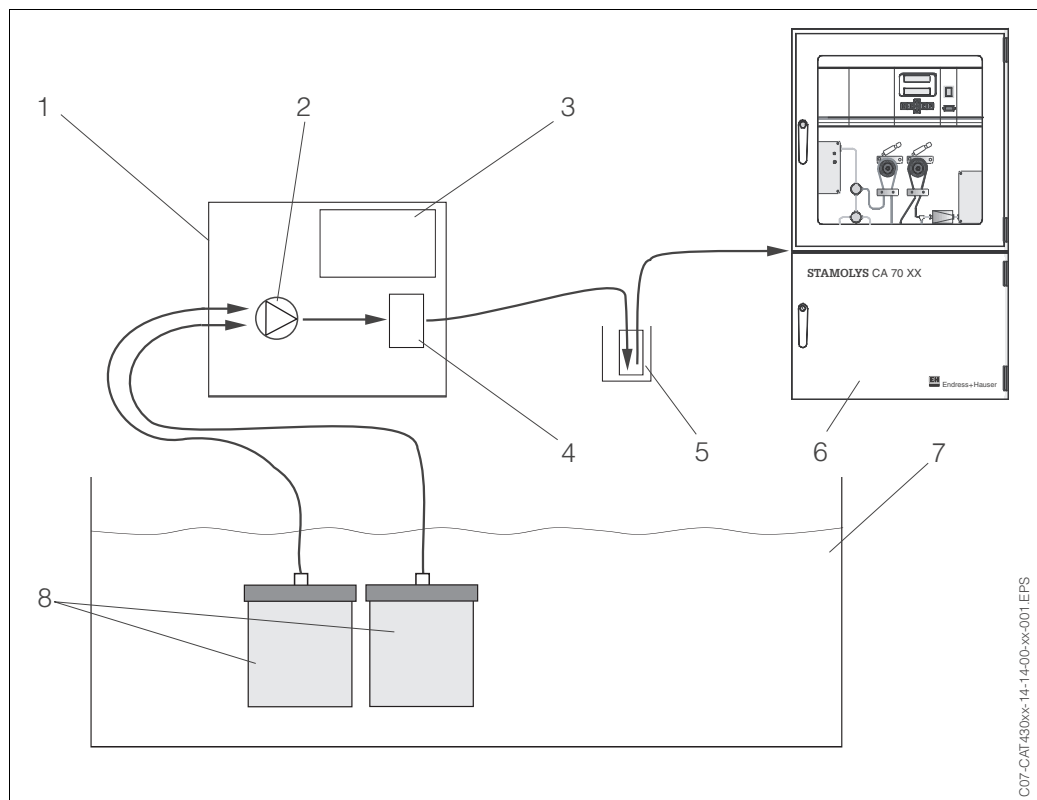
The minimum specified intervals must be maintained. Parallel connection of two or four filter elements means that the sampling quantity can be increased to up to 1 l/h approx. The hose pump pressure alone transports the sample from the pump box to the measuring devices over a distance of 20 m. For distances up to 100 m, a sample transportation unit is used whereby a certain sampling quantity is transported to the measuring devices by means of compressed air. A collecting vessel is used to collect the sample on the measuring device side. This vessel is mounted as close as possible to the measuring devices and also serves to filter out air bubbles. The individual measuring devices draw in samples from this vessel while surplus samples can drain away by means of a tube attached to the centre of the collecting vessel.

### Measuring device

A complete measuring device comprises:

- a CAT 430 filter system
- a collecting vessel
- a CA 70xx analyzer

Optionally, a probe with flow assembly can also be integrated into the measuring device.



Complete measuring device

- |                               |                                |
|-------------------------------|--------------------------------|
| 1 Hose pump box               | 5 Collecting vessel (optional) |
| 2 Hose pump                   | 6 Analyzer                     |
| 3 Control unit                | 7 Activated sludge basin       |
| 4 Collecting block (optional) | 8 Membrane filter              |

## Electrical connection

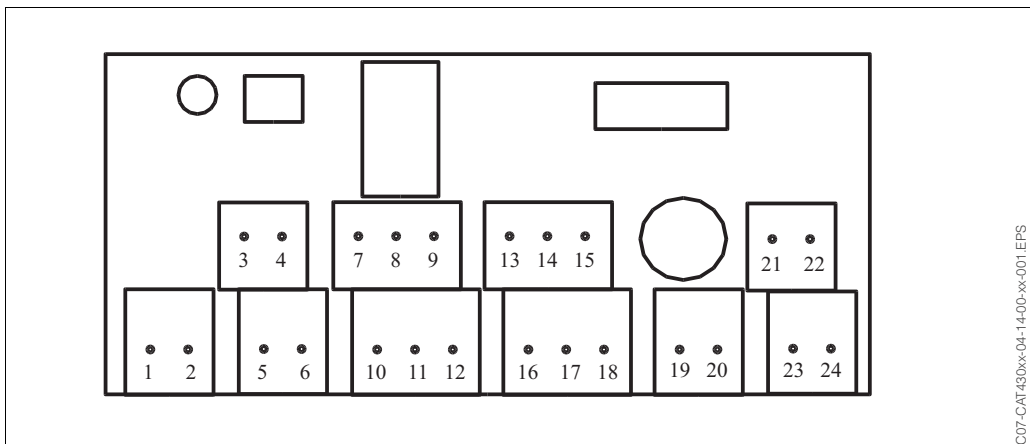
### Hose pump box connection

230 V AC, 50/60 Hz, 130 VA  
115 V AC, 60 Hz, 260 VA

### Measuring device compartment

- only for electric band heater > 20 m:  
15 VA per meter electric band heater, earth leakage breaker protected
- only for sample transportation unit:  
Socket 230 V AC, 50/60 Hz, 2000 VA

### Control unit terminal assignment



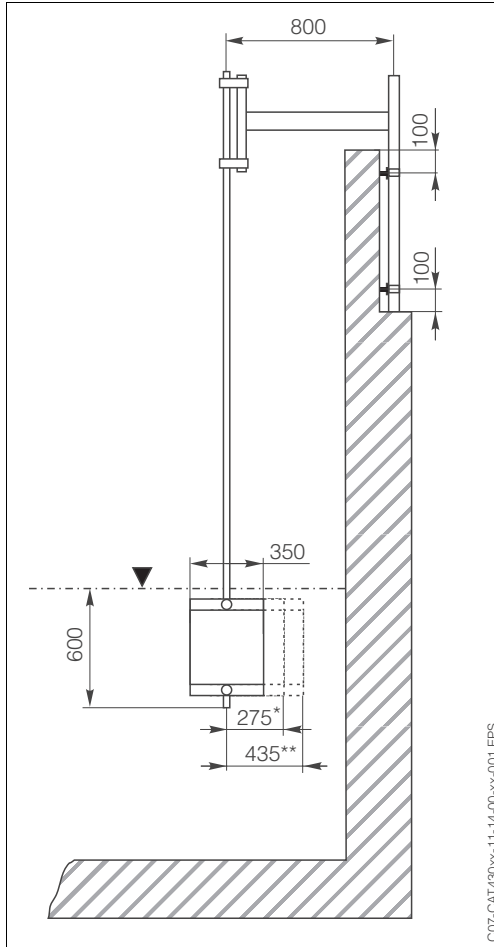
Control unit terminal block (version with sample transportation unit)

1	24 V to hose heater	9	Phase L for hose pump continuous operation	17	Electric band heater zero conductor
2	24 V to micro thermostat	10	Phase L from relay	18	Mains supply zero conductor
3	24 V to valve	11	Phase L (can be assigned as required)	19	Phase L electric band heater
4	24 V to control Q1 f. valve	12	Phase L control	20	Phase L mains supply
5	24 V from micro thermostat	13	Housing heater zero conductor	21	Housing heater earth
6	24 V to hose heater from micro thermostat	14	Hose pump zero conductor	22	Earth (can be assigned as required)
7	Phase L housing heater from relay	15	Zero conductor (can be assigned as required)	23	Electric band heater earth
8	Phase L to control 6 or Q2 f. hose pump	16	Control zero conductor	24	Mains supply earth

You have to connect terminals 18, 20 and 24. You have also to connect terminals 17, 19 and 23 if using an electric band heater for the sample carrying tube.  
All other connections have been made at the factory.

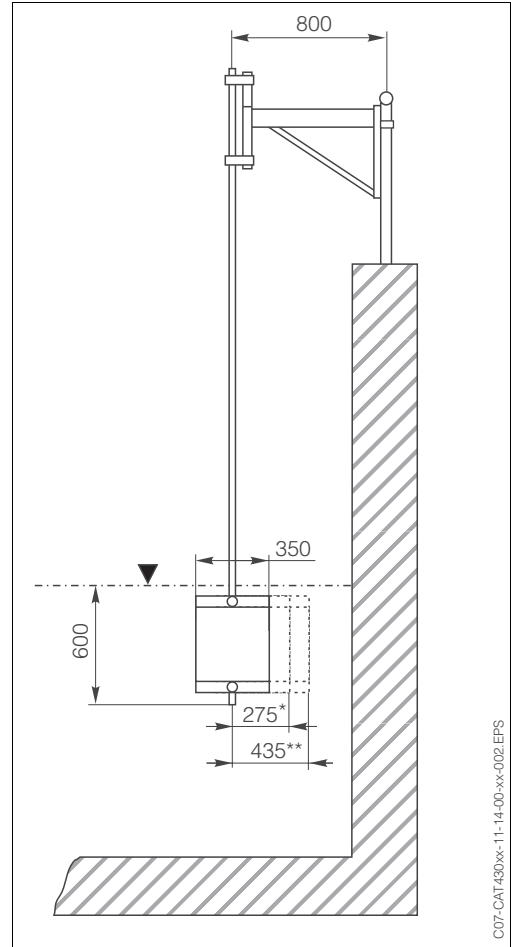
# Installation

## Installation instructions



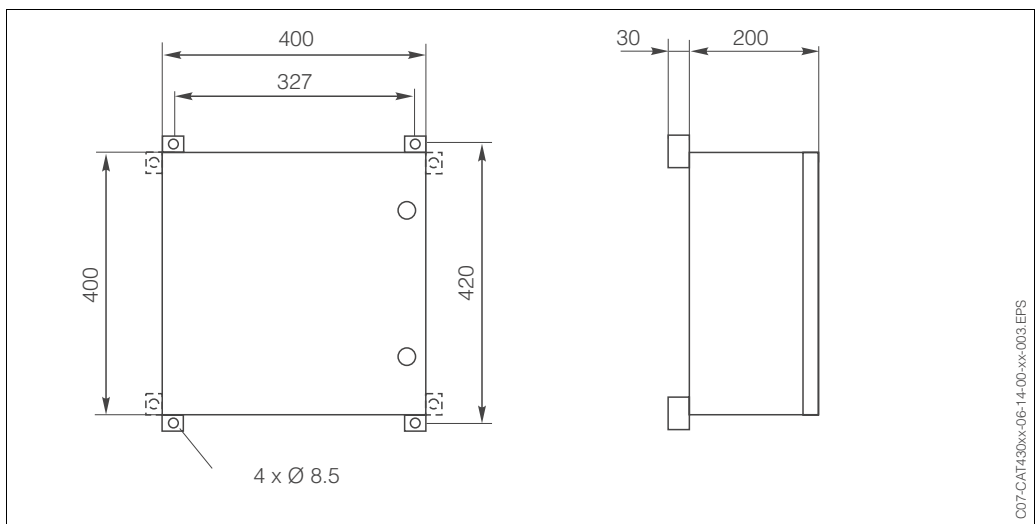
C07-CAT430xx-11-14-00-xx-001.EPS

Filter element(s) wall mounting  
\* 2 filter elements



C07-CAT430xx-11-14-00-xx-002.EPS

Filter element(s) rail mounting  
\*\* 4 filter elements



C07-CAT430xx-06-14-00-xx-003.EPS

Hose pump box dimensions,  
left front view, right side view

## Environment

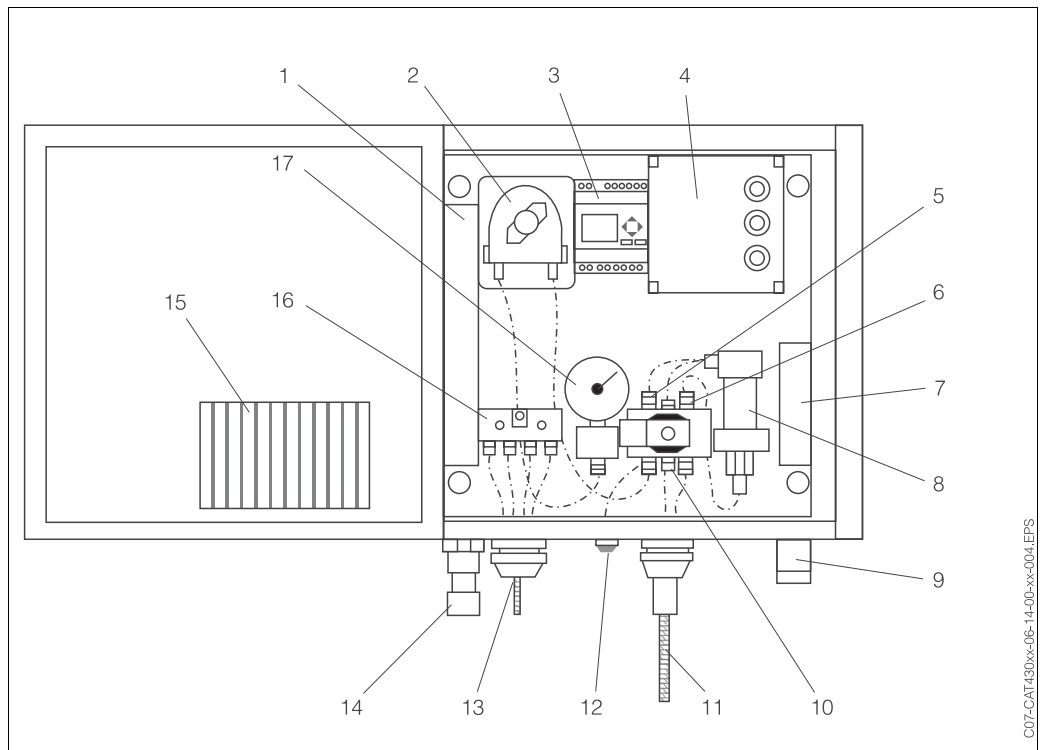
<b>Ambient temperature range</b>	-25 ... 50 °C
<b>Air humidity</b>	0 ... 95 %, no splash water

## Process

<b>Sample temperature</b>	5 ... 50 °C
<b>Sample pressure</b>	1 ... 3.5 bar
<b>Filtrate quantity</b>	approx. 250 ml/h per filter element

## Mechanical construction

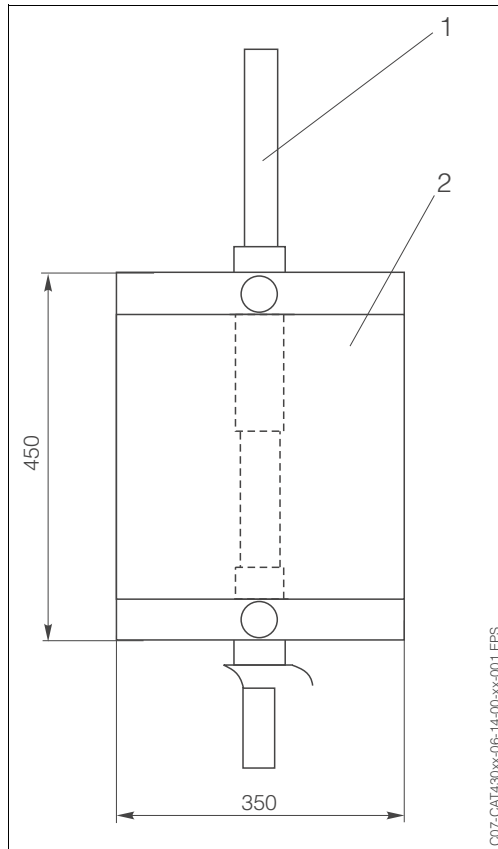
### Hose pump box



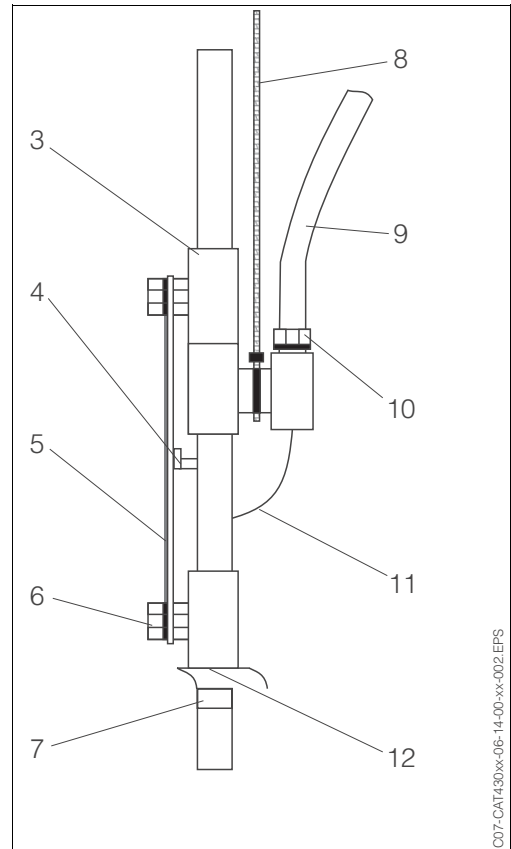
Hose pump box with compressed air sample supply, inside

- |  |   |
|--|---|
| 1,7 Cable duct                                 | 10 Compressed air connection                        |
| 2 Hose pump                                    | 11 Electric band heater                             |
| 3 Timer (version 1, see "operating elements")  | 12 Vent   |
| 4 Connection box (see "electrical connection") | 13 Pg hose gland f. filtrate pipe f. filter element |
| 5 Check valve 1                                | 14 Pipe socket with micro thermostat                |
| 6 Check valve 2                                | 15 Housing heater                                   |
| 8 Collecting vessel                            | 16 Filtrate collecting block                        |
| 9 Pg cable gland for mains connection          | 17 Manometer  |

**Filter unit**



Filter element, front view



Filter element, side view

- |   |                      |    |                |
|---|----------------------|----|----------------|
| 1 | Guide tube           | 7  | Clip           |
| 2 | Filter element       | 8  | Plastic rope   |
| 3 | Retaining slide      | 9  | Filtrate pipe  |
| 4 | Threaded elbow joint | 10 | PVC hose gland |
| 5 | PES membrane         | 11 | Filtrate tube  |
| 6 | PVC threaded joint   | 12 | Stop disk      |

**Weight**

Hose pump box, standard	12 kg
Hose pump box with transportation unit	15 kg
Filter unit, 1 filter element	2 kg
Filter unit, 2 filter elements	4 kg
Filter unit, 4 filter elements	8 kg
Filter element	1 kg

**Materials**

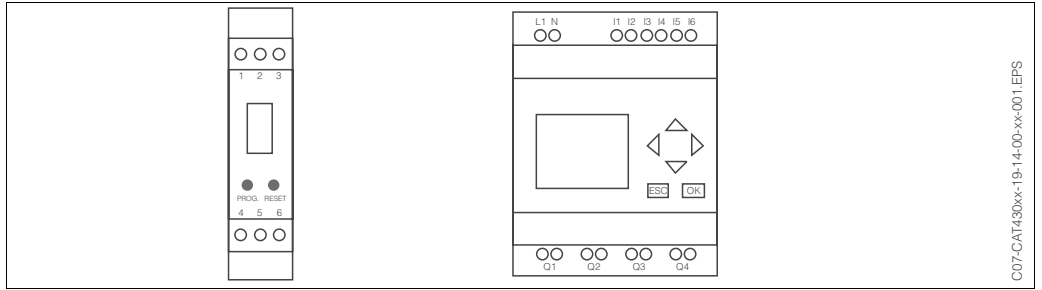
Compressed air valve	3/2 way-valve, 24 V, 8 W, VA housing
Housing heater	Resistance heater, 230 V, ~ 50 W, splash-proof, on Al-heat exchanger plate
Filter element	PVC carrier plate, PES membrane
Retaining slide	PVC pipe
Guide tube	Stainless steel, 1.4301 (AISI 304)
Traverse	Steel, hot-dip galvanized

**Performance**

Filtrate quantity	approx. 200 ml/h per filter element
Sample carrying distance	max. 20 m without sample transportation unit max. 100 m with sample transportation unit

## Human interface

### Timer



Timer

left: Trumeter 7955 X (standard),

right: Small control, Siemens LOGO! 230RC (with sample transportation unit)

Connections and operation - see Operating Instructions BA338C/07/en

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## Ordering information

### Product structure

Sample volume	
A	250 ml/h; 1-2 Stamolys CA 70 incl. 5 m hose t. filter and control box
B	500 ml/h; 3-4 Stamolys CA 70 incl. 5 m hose t. filter and control box
C	>800 ml/h; 1-3 Stamolys CA 70 and CNS 70 or CSS 70 sensor with PE flow chamber, incl. 5 m hose t. filter and control box
Y	Special version to client's requirements

Length of the sample tube (from control box to analyzer)	
1	up to 20 m (without heater)
2	up to 100 m (with external compressor and 100 m hose without heater)
3	up to 100 m (with internal compressor and 100 m hose without heater)
9	Special version to client's requirements

Fittings (from control unit to analyzer CA 70)	
A	Without sample hose heater
B	With 2 m sample hose heater
C	With 4 m sample hose heater
D	With 8 m sample hose heater
E	With 14 m sample hose heater
F	With 18 m sample hose heater
Y	Special version to client's requirements

Power supply	
0	230 V AC
1	115 V AC

Sampling between filter and controller	
A	Heated
B	Not heated

Hose pump station mounting	
2	Wall holder
3	Basin holder with protective cover
9	Special version to client's requirements

Assembly	
B	Immersion tube 1.80 m with wall holder
C	Immersion tube 2.50 m with wall holder
D	Immersion tube 3.00 m with wall holder
Y	Special version to client's requirements

complete order code	
CAT 430 -	

## Supplementary documentation

- StamoClean CAT 430, Operating Instructions, BA338C/07/en, Order no. 51508731
- StamoLys CA 70 AM, Analyzer for Ammonium, Technical Information, TI219C/07/en, Order no. 51502581
- StamoLys CA 70 NI, Analyzer for Nitrate, Technical Information, TI220C/07/en, Order no. 51502639
- StamoLys CA 70 PH, Analyzer for Phosphate, Technical Information, TI221C/07/en, Order no. 51502641

**Subject to modifications**

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