

## HYDRO **FIL**®

### Side stream filtration

Type: **SSF 2.0 – 25.0**

#### Application

Our side stream filtration system HYDRO **FIL**® SSF is suited to maintain the water quality in closed and semi-open cooling and heating circuits.

A replacement of the system volume is not necessary and the water quality in the loop is maintained according to the valid regulations.

The unit is suited to protect the pipes and subsequent water-bearing systems from corrosion and malfunction. Not dissolved water components such as sand, scale and corrosion particles are kept back to prevent a contamination of the system.

An optimum matching to the water components (recipe) is realised by filter cartridges having corresponding suitable mesh size and filter material.

#### Purpose of side stream filtration

Side stream filtration is used for flushing out solids (pollutants) which have contaminated cooling or heating water circuits. Suspended matters penetrate cooling towers via additional water and by air contact but can also be caused by corrosion or biological growth.

Generally a suspended load concentration of < 10 mg/l is aimed. Therefore, usually ca. 5 – 10% of the circulation volume flow is filtered by means of the side stream filter.

For side stream filtration filter cartridges are used which must be replaced at a differential pressure of  $\geq 0.8$  bar. At a quintuple concentration (> 50 mg/l), the installation of a side stream filter is recommended.

#### Advantages of side stream filtration

- Easy replacement of filter cartridges  
(mesh size: 5, 10, 20 or 50  $\mu\text{m}$ )
- Few space required
- Minimal pressure drops
- Continuous filtration stream
- Low maintenance required
- Applicable as "stand alone" solution or as component of a sophisticated water treatment

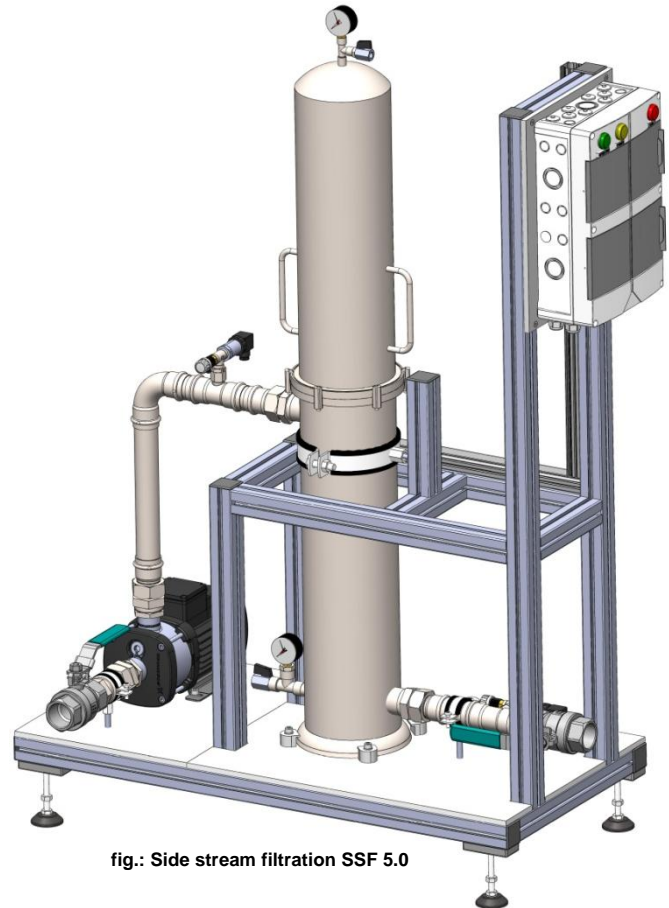


fig.: Side stream filtration SSF 5.0

#### Scope of supply

HYDRO **FIL**® Side stream filtration **SSF 2.0 – 25.0**

- Base frame of anodised aluminium profiles
- Stainless steel filter casing with discharge/ ventilation fittings and pressure gauge (0 – 16 bar)
- Filter cartridges for a max. temperature of:  
Polypropylene max. 80 °C / Viscose max. 100 °C
- Number of filter cartridges in the system dependent on filter size (see technical data)
- Filter mesh size 5, 10, 20 and 50  $\mu\text{m}$  possible
- Pressure booster pump (dependent on system size)
- Pipework inside the system (dependent on system size)
- PLC controller

## Design

The system is installed on a base frame of anodised aluminium profiles. A part of the stream that is taken by a rotation pump is conveyed passing the cartridge filter. The cartridge filter consists of a stainless steel filter casing equipped with filter cartridges of respective mesh size.

The water to be filtered passes the filter cartridges from outside to inside. Unwanted substances are kept back at the outer wall of the filter cartridge. To facilitate cartridge replacement, the filter is equipped with a detachable filter head.

The local connection to the heating circuit is uncomplicated. Stop fittings in the input and output of the system allow a service-friendly cartridge replacement that is supported by ventilation and discharge option at the filter cartridge.

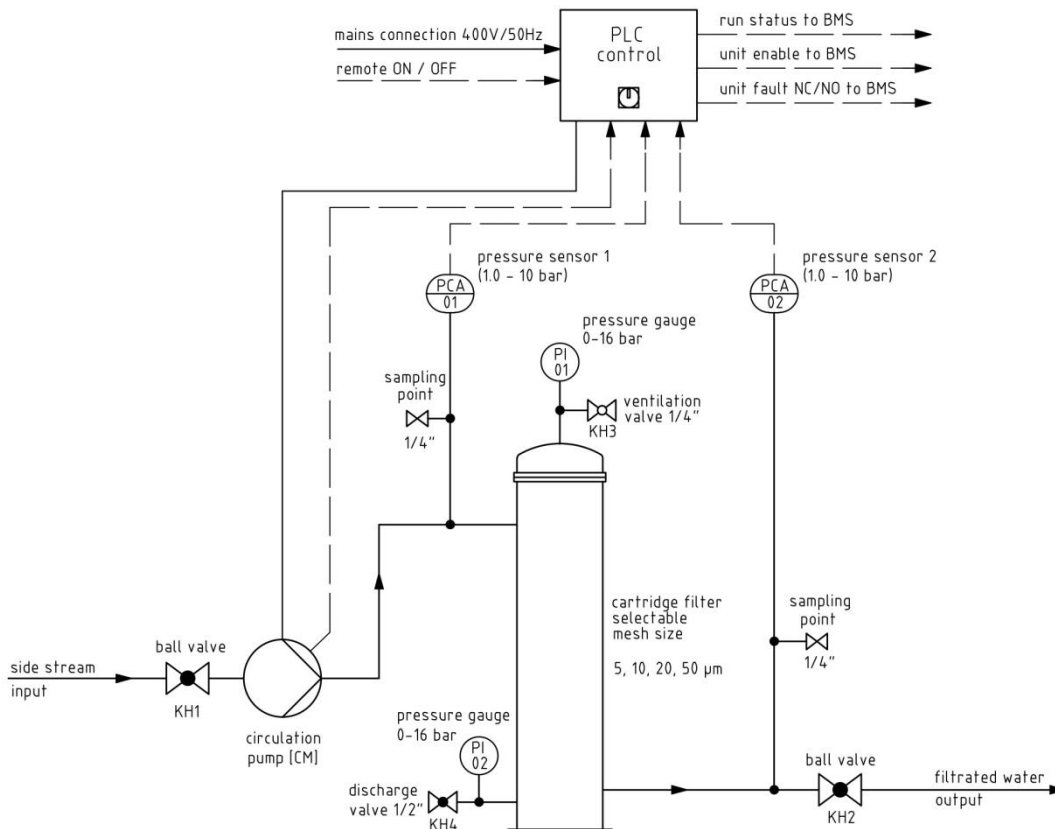
The pressure in the cartridge filter is controlled by a differential pressure switching. The plc controller evaluates any information or parameters and a failure record caused by exceeding the adjusted limit values is forwarded to the BMS.

Pressure gauges in the input and output of the cartridge filter allow a visual inspection of the pressure on site. The filter cartridges are replaced if a pressure drop of ca. 0.8 bar is evident or **after 6 months at the latest!**

## Notes / Installation conditions

- Technical data and general technical guidelines as well as all local installation regulations shall be observed.
- The ambient temperature and any possible radiation heat shall not exceed a temperature of 40°C.
- The installation site must be protected against frost.
- The installation site has to be free from solvent, colorant, varnish and chemical vapours.
- The flow direction at input and output must be observed whilst installation. No tensile, pressure and torsion forces may act on the input and output connections.
- A mains connection for the plc controller (400V / 50 Hz) shall be provided adjacent to the system.
- A connection for the filter discharge must be provided at installation site.
- A free access to the system must be guaranteed.

## Installation schematic

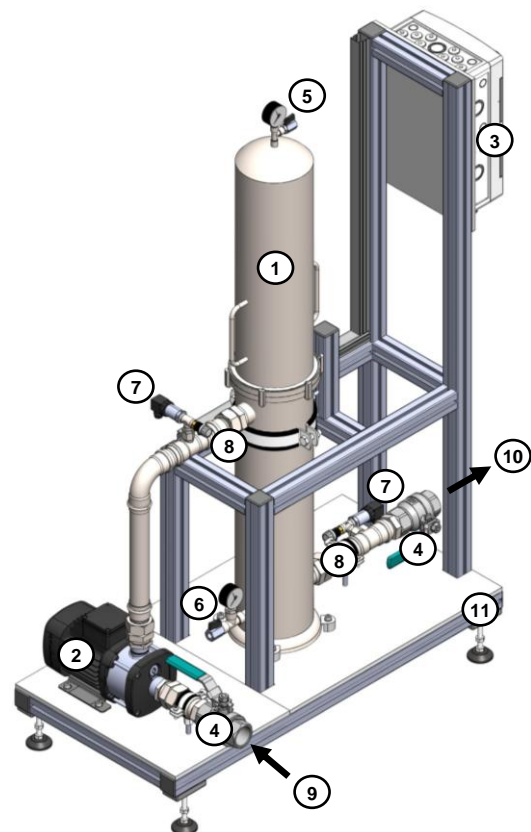


## Technical data

HYDRO FIL®	Unit	SSF 2.0	SSF 3.0	SSF 5.0	SSF 10.0	SSF 17.0	SSF 25.0
Connection input/output	DN	DN 25 (1")	DN 32 (1 ¼")	DN 40 (1 ½")	DN 50 (2")	DN 65 (2 ½")	DN 80 (3")
Nominal pressure		PN 10					
Operating pressure min.	bar	2.5					
Operating pressure max.	bar	10					
Water temperature max.	°C	80 (Polypropylene) / 100 (Viscose)					
Ambient temperature min./max.	°C	5 / 40					
Flow capacity	m³/h	2.0	3.0	5.0	10.0	17.0	25.0
<b>Filter GEM</b>							
Material - Filter		1.4401 – (AISI 316)					
Filter mesh size	µm	5 / 10 / 20 / 50					
Filter cartridges (Height)		20"	20"	40"	40"	40"	40"
Number of filter cartridges	pieces	3	3	3	5	7	9
<b>Rotary pump (CM)</b>							
Pumping capacity	m³/h	2	3	5	10	17	25
RPM (Revolutions per minute)	1/min.	2900					
Electrical connection	V/ Hz	400V / 50 Hz					
Nominal current	A	1.0 – 1.2			2.55 – 2.6	4.5 – 4.7	
Power	kW	0.46			1.2	2.2	
<b>Dimensions / Weight of system</b>							
Height max.	mm	1460	1460	1545	1510	1680	1715
Width max.	mm	490	490	490	770	770	770
Depth max.	mm	1000	1000	1000	1000	1000	1150
Transport weight ca.	kg	90	95	100	130	150	170
Operating weight ca.	kg	110	115	130	180	200	240

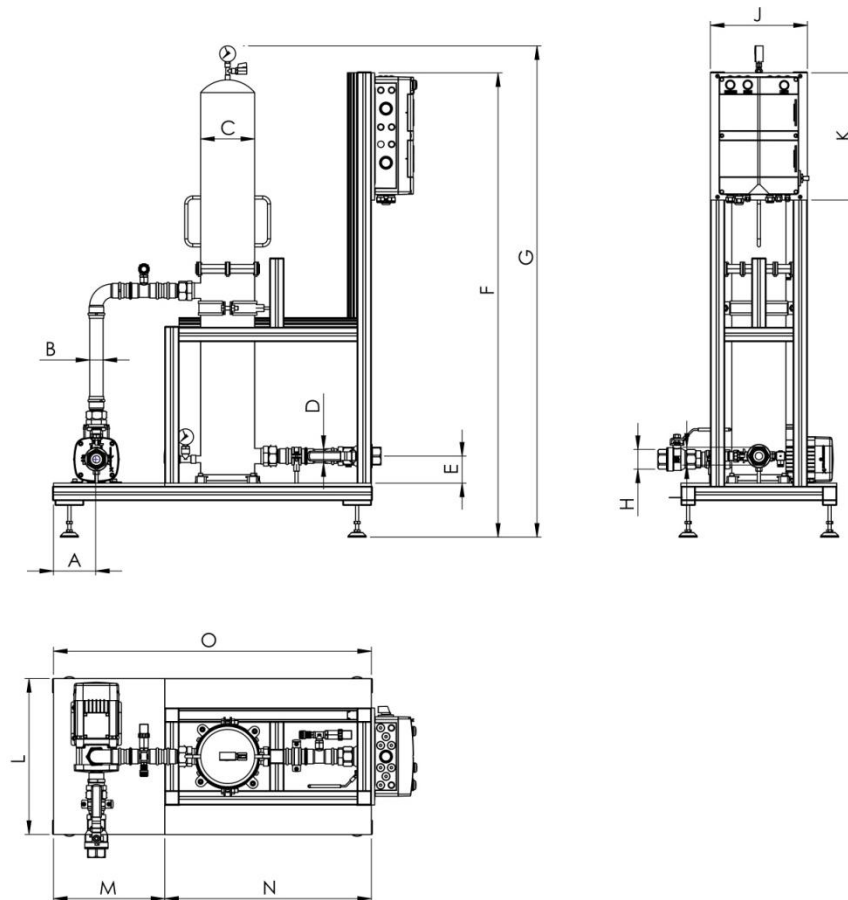
## Components

- 1 = Cartridge filter
- 2 = Rotary pump (Type - CM)
- 3 = PLC control
- 4 = Ball valves
- 5 = Venting of filter (incl. gauge on water inlet)
- 6 = Drainage of filter (incl. gauge on water outlet)
- 7 = Pressure sensors
- 8 = Sampling points
- 9 = System inlet
- 10 = System outlet
- 11 = Base frame



## Construction drawing with dimensions

### HYDRO FIL® SSF



mm	SSF 2.0	SSF 3.0	SSF 5.0	SSF 10.0	SSF 17.0	SSF 25.0
<b>A</b>	150	150	135	120	135	150
<b>B</b>	Ø 28	Ø 35	Ø 42	Ø 54	Ø 76.1	Ø 88.9
<b>C</b>	Ø 170	Ø 170	Ø 170	Ø 210	Ø 219	Ø 255
<b>D</b>	Ø 28	Ø 35	Ø 42	Ø 54	Ø 76.1	Ø 88.9
<b>E</b>	85	85	85	78	120	120
<b>F</b>	1460	1460	1460	1460	1460	1460
<b>G</b>	1045	1045	1545	1510	1680	1715
<b>H</b>	1"	1 ¼"	1 ½"	2"	2 ½"	3"
<b>I</b>	1"	1 ¼"	1 ½"	2"	2 ½"	3"
<b>J</b>	305	305	305	365	365	400
<b>K</b>	400	400	400	400	400	365
<b>L</b>	490	490	490	770	770	770
<b>M</b>	350	350	350	350	395	395
<b>N</b>	650	650	650	650	650	800
<b>O</b>	1000	1000	1000	1000	1000	1150