Blow-back filter – self-clean any sample stream

Sampling Conditioning Systems (SCS) from Metrohm Process Analytics

HIGHLIGHTS

- **Increased analyzer uptime** due to problem free sampling
- **Fast and easy filter self-cleaning** due to continuous process flow
- **SCS fully controlled** by your Metrohm Process Analyzer
- **Easy maintenance** due to simple design with shut-off valves
- Additional **auto-cleaning** by means of a back wash for high solid content
- **Multiple materials** of construction options to adapt to the nature of the sample

Metrohm
Process Analytics

Push your analytical analysis with optimal sampling systems

The filter unit is a cross flow type filter unit. The majority of the sample flow travels tangentially across the surface of the filter element. Only when the analyzer requires sample, a small portion of the sample flow which is smaller than the membrane pore size passes through the filter element (filtrate or permeate) into the sampling device of the analyzer. In this way the main sample flow provides a scrubbing or washing action and removes solids from binding to the surface of the filter element and carried away during the filtration process. This filtering principal minimizes solid build-up and increases the length of time a filter unit can be operational.

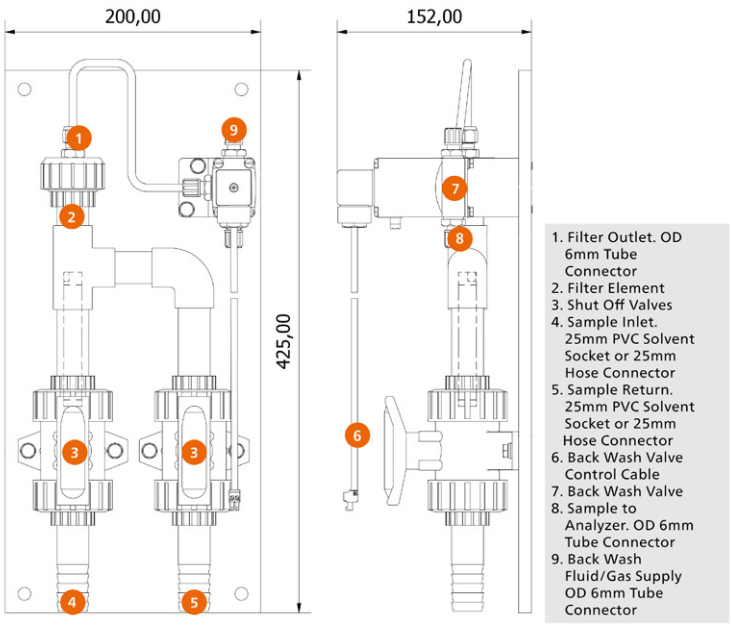
For high content solids and certain sample matrices the surface of the filter element may demand additional periodic cleaning. This can be achieved automatically with the use of a «back wash valve» and by either using a suitable cleaning liquid or air. The analyzer controls the frequency and length of time to back wash the surface of the filter element efficiently. Filter elements for the filter unit are available in various pore sizes.**

OPERATION PRINCIPLE

The major sample flow passes tangentially across the filter element. When the analyzer requires sample, its sample valve is opened and a small portion of the major sample flow passes through the filter element and is directed into the sampling device of the analyzer by a positive pressure difference or with the help of a pump. Additionally an auto back wash action can be programmed in the analyzer and its frequency dependant upon the sample matrix and amount of solids. As a convenient safeguard it is advisable to program a back wash action immediately after sampling to increase analyzer uptime. The frequency of the back wash depends on the sample matrix, amount of solids, etc.

REQUIRED UTILITIES

Fluid (e.g. water) or gas (e.g. air or nitrogen) for backwashing the filter element if required.



Filter unit blow back front and side view.

SPECIFICATIONS

Instrument	
Dimensions	PVC: 200 x 400 x 120 mm (W x H x D) SS316: 205 x 420 x 120 mm (W x H x D)
Liquid contacting materials	PVC: EPDM, SS316, PVC SS316: EPDM, SS316
Range allowable sample temperature*	PVC: 50 °C SS316: 80 °C
Max. Allowable sample pressure*	600 kPag (6 barg)
Recommended sample flow	1.5–3.5 m^3/hour
Available filter elements	1 , 5, 10, 20, 40, 75, 100, 200 micron
Available filter element materials	SS316, hastlelloy on request
Back wash valve	
Operating Voltage	24 VDC
Seal material	EPDM
Body material	SS316
Orifice	3 mm

* The total system design must be considered when applying the maximum allowable pressure and temperature ratings.
** The filter element is not included in the filter unit package and must be ordered separately based on specification.