

STEINECKER TFS Twin Flow System

Innovative candle filtration



Everything under control

STEINECKER TSF Twin Flow System

Filtration systems are expected to produce bright beers which display excellent stability and long shelf life. A filtration system which does this at a high level of performance while saving on filtering media leaves no wishes unfulfilled.

The STEINECKER TFS Twin Flow System is based on a twin flow principle: a filtrate sub-flow and an unfiltrate subflow can be set independently of each other. The results are controlled impacting of the filter surface and laminar flow conditions throughout the filter. TFS technology is characterised above all by an arrangement in which the filter elements are grouped together in a pipe system, the so-called register. This enables effective use of the filter medium and even distribution of the particles in the filter cake at every point of the filter candle.

STEINECKER filter technology at a glance

- Exactly adjustable sub-flows of unfiltrate, filtrate and in the bypass line result in a uniform and homogeneous precoating of the filter elements and enable notable savings in filter medium.
- Optimisation of the filtration process is reflected in the very small fore-run.
- The volumetric flow in the bypass can be adapted exactly to the filter medium used and its specific settling rate.
- A piston flow is created in the boiler by means of the flowstreamer in the area of the filter inlet.
- The register technology enables optimum aeration and cleaning.

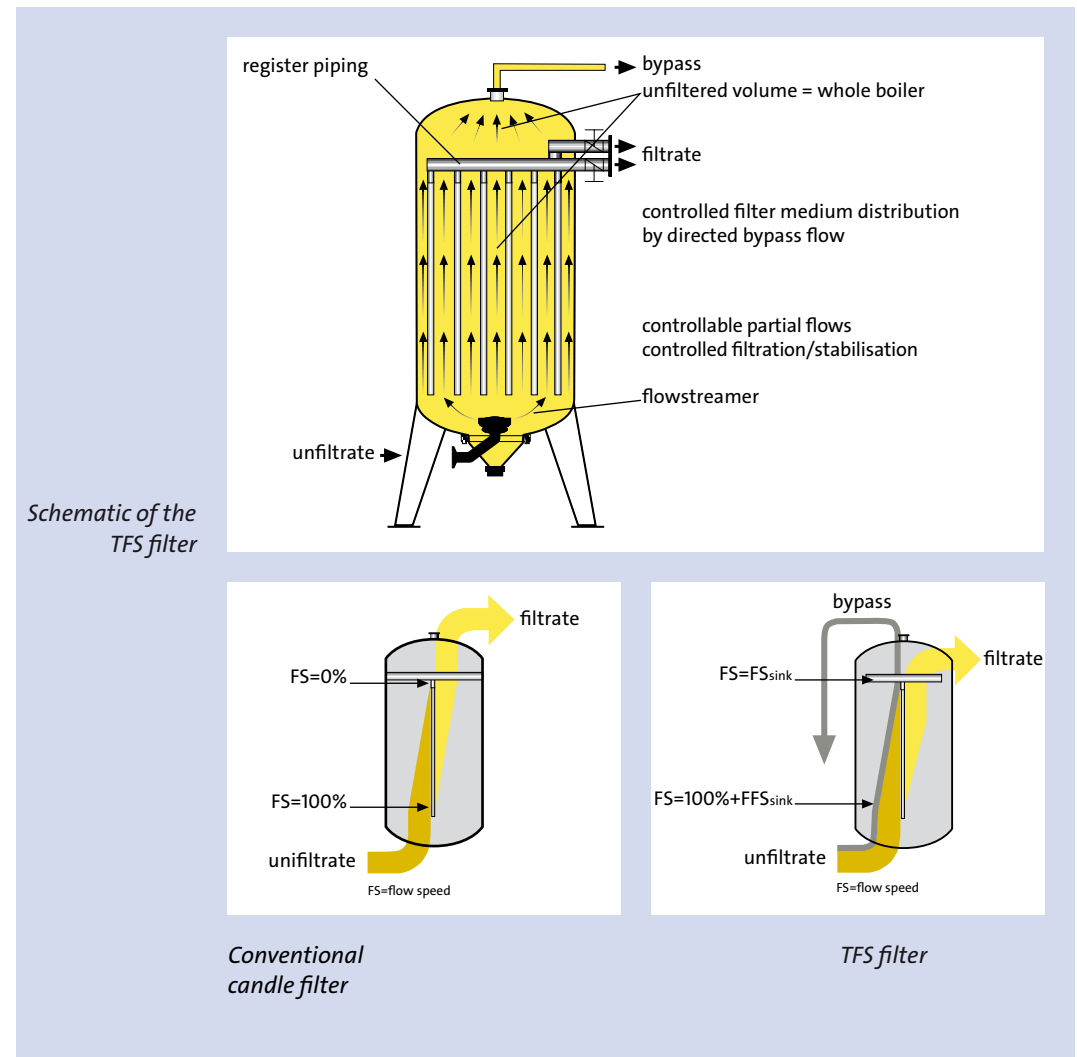


Principle of operation

The filter candles are connected to a profiled pipe (the register) which serves as an outlet manifold for the filtrate. The register thus forms the filtrate compartment, while the rest of the boiler forms the unfiltrate compartment. With the flow of unfiltrate directed vertically upwards parallel to the filter candles, the filter medium is carried to the upper end of the filter candles.

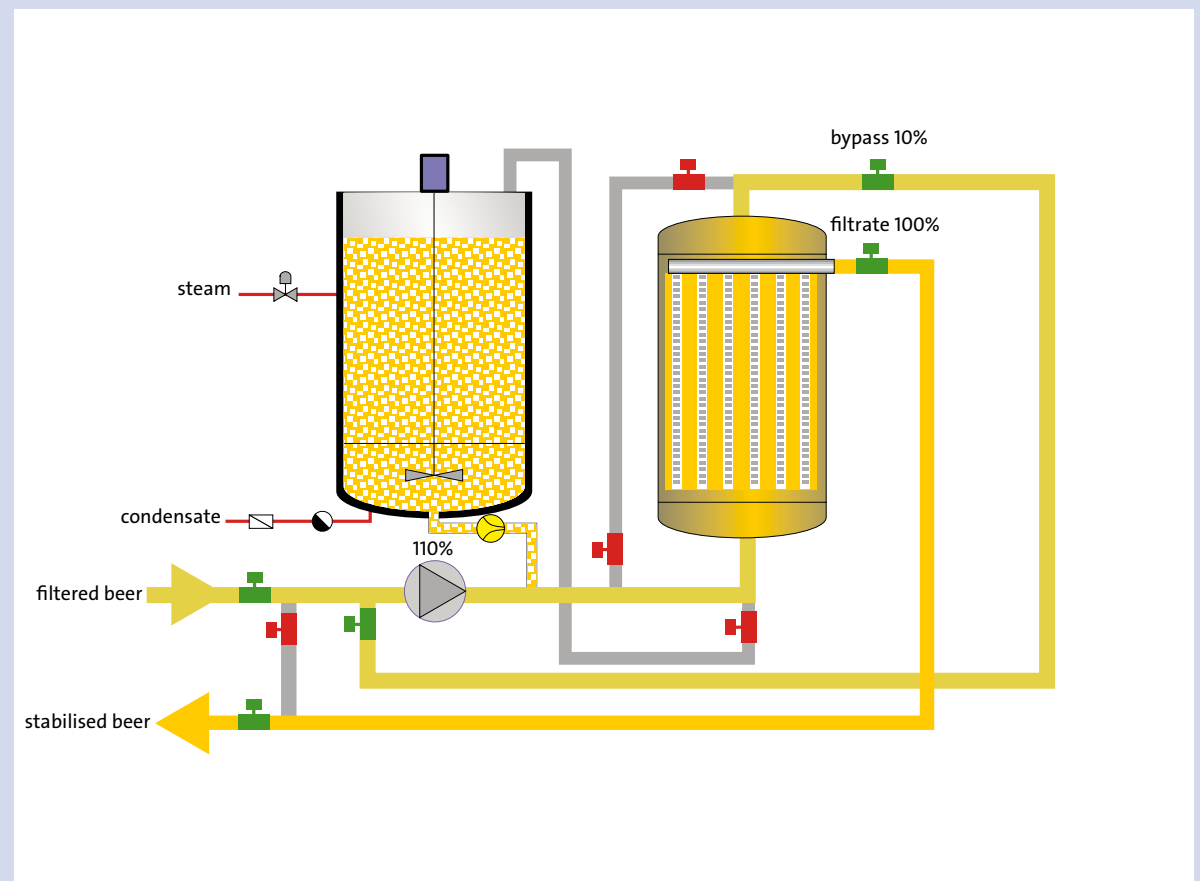
At the highest point of the filter boiler, the bypass flow of unfiltrate is diverted and returned to the unfiltrate flow upstream from the beer pump. The filter candles are equipped with a diagonally wound profiled wire which promotes the good adhesion of the filter medium to the filter element. The filtrate which passes through the filter elements runs off through the register piping.

Depending on the size of the register it is divided into 2 or 3 filtrate outlets; with this arrangement it is possible to clean the candles effectively and still save water. A filler pipe integrated in the filter elements provides for high stability while helping to reduce the volume and therefore increase the flow speeds within the candle. Sedimentation of the filter medium inside the candles is effectively prevented as the result.



Design features

The STEINECKER TFS system also provides optimum conditions for the stabilisation of beer with PVPP (polyvinylpyrrolidone). Controllable flows of unfiltrate and filtrate ensure even precoating and a homogeneous filter cake. An integrated inlet distributor helps in addition to produce a uniform flow speed at all the filter elements. Optimum contact times, uniform PVPP distribution and short set-up times are all arguments in favour of the Twin Flow System.

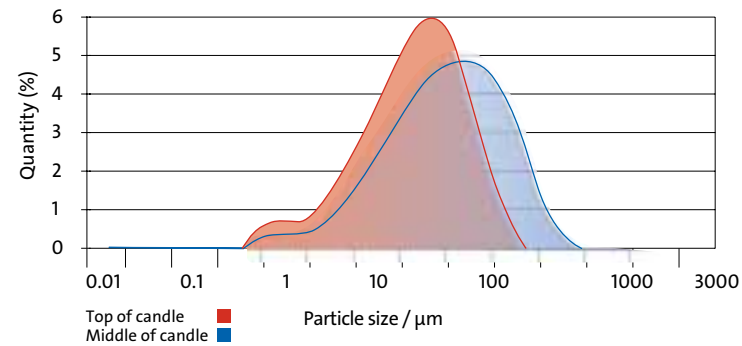


*Schematic of a
TFS PVPP plant*

Kieselguhr consumption data from 2 breweries*

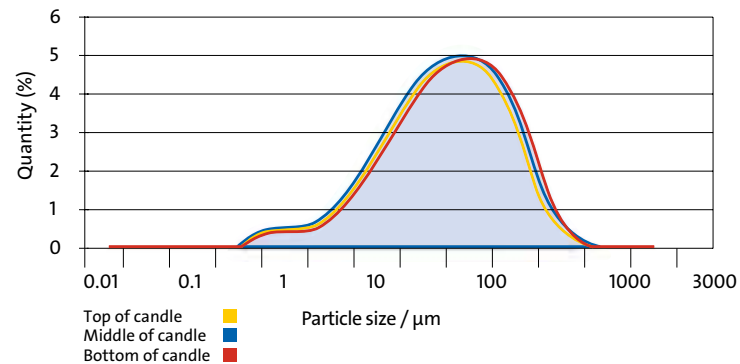
	Unit	Brewery A	Brewery B
before conversion	g/hl	156	196
after conversion to TFS	g/hl	93	150
savings	%	40	23

* without precoating, continuous dosing



Kieselguhr particle distribution

on a pre-coated element in a classic system with perforated plate technology



Kieselguhr particle distribution

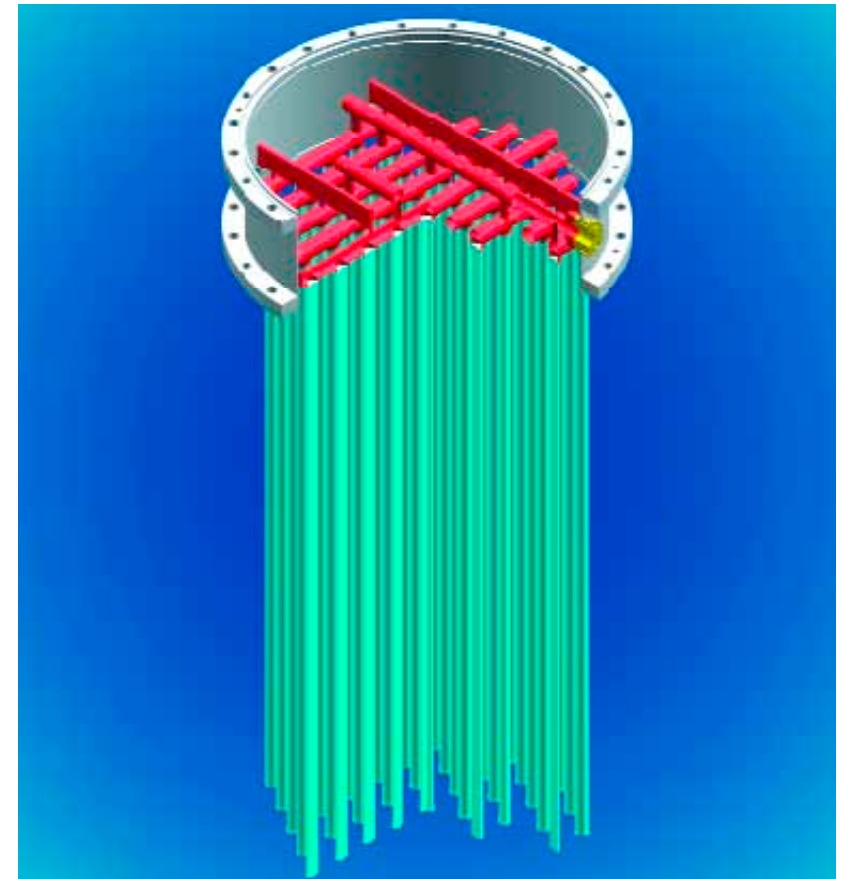
on a pre-coated element in the STEINECKER TFS with register outlet

Layout configurations

Turning old into new

STEINECKER TSF Twin Flow System

The retrofitting of an old plant with modern, high-performance technology is an ideal solution in terms of profitability. The TFS conversion concept for every boiler filter can raise the plant's performance at justifiable cost. In this solution the TFS register with intermediate flange is integrated between the boiler shell and the cover. Existing aeration lines or filtrate outlets are used as a bypass. Other obsolete connections on the boiler are shut down with hygienic closures. Converting an existing boiler filter to the TFS filter also results in less precoating and a longer working life, and the average rate of filtrate is increased while the total consumption of kieselguhr is decreased.



Your benefits

■ Efficiency

Uniform precoating of the filter candle over its full length minimises the consumption of filter medium.

■ Effective design

The system is designed to keep oxygen uptake during filtration below the detection limit.

■ Performance

Uniform impacting of the filter candles results in a homogeneous distribution of particles and therefore in a faster drop in turbidity values. Efficient use of the trub space results in high performance and long service life.

■ Straightforward retrofitting

The TFS concept can be integrated as a retrofit unit in all makes of existing filter system.

