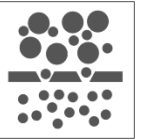


STEINECKER

CombiCube F

A systematic filter concept



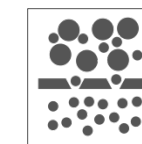
Filtration with utmost flexibility

A compact set-up, with flexible performance and a variety of filtration aids to choose from - these are the advantages which make the CombiCube F more than appealing to small to medium-sized brewers. The modular system components can be individually combined according to the requirements in question and can also be retrofitted at a later point in time. This allows the breweries to clarify their individual beer types in the best way possible.

At a glance:

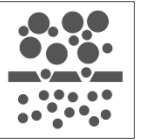
- Combination of five modules for the various process steps in the filtration cellar
- STEINECKER filtration technology included
- Designed according to the variety of types, fermentation regime and sales beer volume
- Extremely variable filtration performance of up to 10 percent of the nominal filtration performance





Concept variants

Equipment	Candle length in mm	Number of candles	Nominal performance in hl/h	Manual	Hardware/ software support	Automatic
TFS 700	1,000	37	26	x	x	x
TFS 700	1,500	37	39	x	x	x
TFS 700	1,500	49	51	x	x	x
TFS 900	1,500	69	72	x	x	x
TFS 900	1,800	69	87	x	x	x
TFS 900	1,800	85	107	x	x	x
Buffer module	High number of types and batches			x		x
Conditioning module	High-gravity process				x	x
Disposal module	Kieselguhr draining			x		x
CIP module	No existing CIP system			x		x



The modules of the CombiCube F



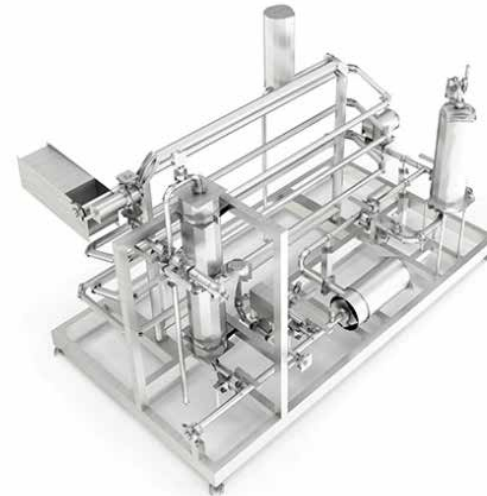
Filtration module

- Candle filter with well-proven STEINECKER TFS technology
- Kieselguhr mixing and dosing tank
- Manual operation, optionally with hardware controller for circuit operation and automatic turbidity monitoring



Buffer module

- Non-filtrate buffer tank for frequent tank changing in storage cellar
- Pre-run and post-run tank for reducing losses due to beer type change with several beer types per filtration



Conditioning module

- Carbonation and original extract correction for high-gravity brewing processes
- Filtrate buffer tank for pressure surge adsorption



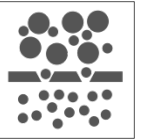
Disposal module

- Settling tanks for draining the water from the kieselguhr once it has been discharged from the filter
- Individual design of the tank volume to suit the storage capacity



CIP module

- CIP buffer tank with inline dosing of concentrate
- Temperature monitoring via hardware controller
- Simple cleaning possible with caustic added to the dosing tank at the filter

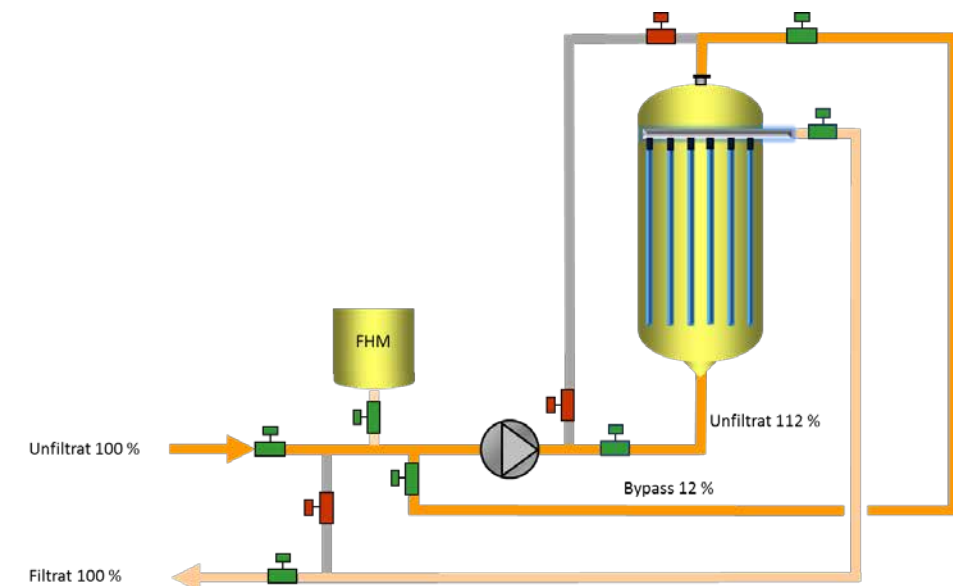
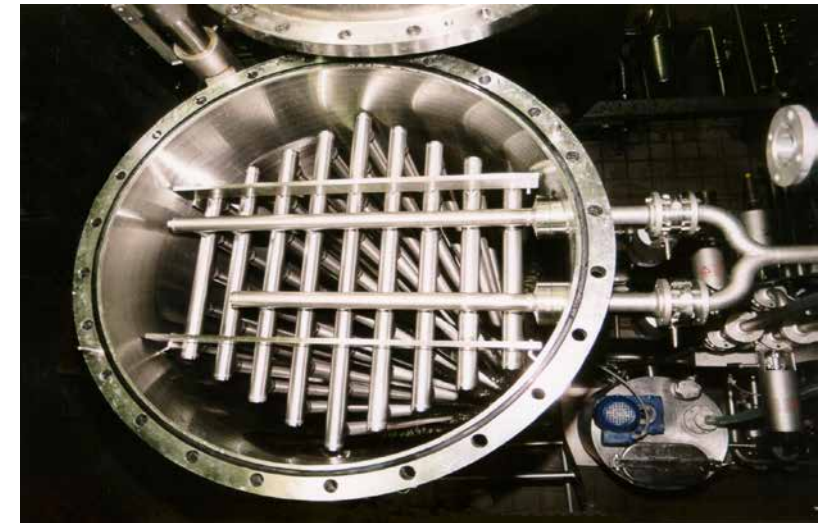


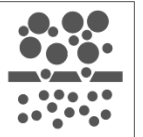
Method of operation

CombiCube F filters according to the twin-flow principle

Register piping replaces the head plate, thus turning the entire tank into a non-filtrate area.

- A bypass is used to increase the overflow speed at the filter elements
- Depending on the filter aid used, its own settling rate may need to be counterbalanced. This allows even precoating to be controlled along the entire length of the filter candle.
- For kieselguhr, a bypass flow at 12 % of the nominal filter performance is recommended.
- By adjusting the bypass flow, the filtrate flow can be slowed down to 10 % of the nominal filter performance.





Expansion of the basic modules

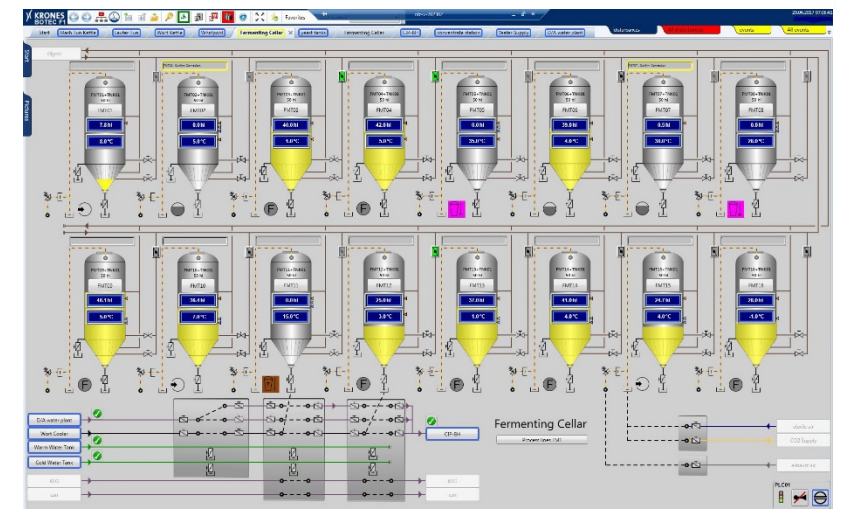
Functional components

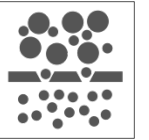
- Trap filter
- Turbidity measurement
- Dosing unit for stabilisation, additives
- Circuit operation
- Automation with PLC
- Carbonator



Control and operation with the batch-oriented Botec process control system

- Fully automatic filtration and cleaning process
- Integrated order and recipe management system
- Batch logging and trend image recordings
- Remote maintenance via VPN



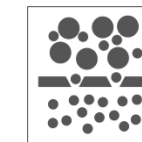


Facts and figures

With the CombiCube F

- A nominal performance of between 26 hl and 107 hl per hour is possible.
- All process steps in the filter cellar can be coped with in five compact pre-assembled modules.
- It is possible to flexibly achieve a performance in the filtrate flow of up to 10 percent of the nominal performance.
- Various filter aids can be used.
- The space in the filter cellar can be optimally used, as the modules can be arranged in a flexible manner.





Benefits to you

Flexible filtration process

Speciality beers and a wide range of types – this means that the system in question must be highly flexible. With the CombiCube F, the filtration performance can be adjusted to 10 percent of the nominal performance.

Well-proven STEINECKER technology

The TFS filtration concept with bypass control allows exact adjustment of the non-filtrate, filtrate as well as the bypass flow for an even pre-coating of the filter elements.

Fully automatic or manual control

Depending on the degree of automation a brewery is equipped with, the CombiCube F can be manually operated or controlled fully automatically.

Low space requirements

The frame construction means that the components can be individually combined and positioned to suit the space available in the filter cellar.

Quick integration into brewing operations

The set-up of the vessels and their connection to the standardised frame modules make it easy to quickly install the system on site.

The CombiCube principle

With the CombiCube, KRONES has created a product range which is aimed specifically at the needs and demands of small to medium-sized breweries. In addition to the CombiCube F for filtration, the CombiCube B for the brewhouse and the modular CombiCube C for the cellar are also available.



Everything from a single source

KIC KRONES cleaning agents make your machine shine

Only if the production environment is immaculate, can your product be brilliant. KIC KRONES provides you with the optimum cleaning agents and disinfectants for each individual production step.

Lubricants from KIC KRONES for every production step

Whether for gears, chains or central lubrication systems – our greases and oils are true all-round talents. They can reach every lubrication point, protect your line and ensure gentle treatment for your products thanks to their food-grade quality.

EVOGUARD – excellent valve technology all along the line

The valve series of EVOGUARD comprises a modular system with hygienic and aseptic components which contributes to every point of the production line with increased performance and which has the perfect solution for every process step.

EVOGUARD – pumps for absolute process safety

In addition to the separation and locking of a line, one thing is particularly important - and that is the reliable conveyance of your product. This is why EVOGUARD also offers innovative centrifugal pumps in addition to high-quality valves.



Digitalisation



Process
technology



Bottling and
packaging equipment



Intralogistics



Lifecycle
Service

We do more.

 **KRONES**