

## Cross Flow System

### IFAB CFS DESIGN



In the photo above is a CFS-10 system

The heart of the filtering process is a semi-permeable polyethersulphone membrane on to which the process liquid is fed in a tangential flow at low pressure.

Thanks to this system, the beer passes through the membrane and leaves it as a clarified permeate, while the solids are retained and continually removed from the filtering surface owing to the effect of the motion created on it. This achieves a filtering action with a stable flow rate.

### Operation

The tangential filters in the CFS Design are managed by a TIMER for automatic control of filtering phase. The beer is conveyed from your storage tank to the filter by transfer pump (included) controlled and powered by the filter panel.

The concentrated product is sent back to your process product tank while the clarified permeate is conveyed to your filtered product tank.

The filtering modules are a 0.8 micron capillary structure in polyethersulphone.

The filtering phase may last from 8 to 24 hours, depending on the type of wine and the impurities it contains.

To maintain its efficiency at more or less constant levels, the machine makes periodical backwashes with the filtered product (back-pulse washing) during the filtering phase in a totally automatic way.

Simple washing with water takes place at the end of the cycle. This is naturally followed by a regenerating and sanitizing wash if the machine is to remain at a standstill for a long period of time.

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### Polyethersulphone membranes

In our CFS system we use robust polyethersulphone hollow fiber membranes.

These membranes are in comparison with ceramic membranes:

- Lower energy consumption
- More compact
- More resistant to outside force
- No problems with thermal shock

The estimated life span is about 8-10 years (or around 600 chemical washings), if used and maintained as prescribed in our manual.

The membranes consist of around 2500 capillaries with a membrane porosity of 0,8µm. Each module has a surface area of 10m<sup>2</sup> with a production flow rate of 500l/h per module.

### What's included

Our CFS systems include:

- Feeding pump group (feed pump and pre-filter) in stainless steel.
- Re-cycle pumps operating at low rotation speed but at high yield, all in stainless steel made.
- Group of impulsive counter-washing (BACK FLUSH SYSTEM) employed for the periodic and automatic counter-washing of the membranes, carried out during the process with the same filtered product.
- Instrumentation control, transducers of pressure for the maintenance of the PTM pressure.
- Visual sight-glasses, samples-taker tap, flow-meter, thermometer.
- Control board with PLC.
- Pneumatic valves for the automated BSF control.
- Buffer tank equipped with level control and automatic product inlet system control with the relevant pump.
- CIP tank for the complete washing of the pump and the pre-filter.
- System for the automatic washing phase control. Instrumentation for the continuous control of pressures, temperatures, output, level in the buffer tank and, at the end, a PLC endowed with a "touch-screen" type system.
- Complete system of pneumatic valves for the operational managing of all the functions.
- Operational device for the final unloading of the filter.

Optional

- Remote monitoring system using tablet and smartphone

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Modell	No of modules	Filter Area	Max. Flow
CFS-10	1	10m <sup>2</sup>	500L/h
CFS-20	2	20m <sup>2</sup>	1 000L/h
CFS-30	3	30m <sup>2</sup>	1 500L/h
CFS-40	4	40m <sup>2</sup>	2 000L/h
CFS-60	6	60m <sup>2</sup>	3 000L/h
CFS-80	8	80m <sup>2</sup>	4 000L/h
CFS-120	12	120m <sup>2</sup>	6 000L/h
CFS-160	16	160m <sup>2</sup>	8 000L/h
CFS-200	20	200m <sup>2</sup>	10 000L/h
CFS-350	35	350m <sup>2</sup>	17 500L/h
CFS-500	50	500m <sup>2</sup>	25 000L/h