

Cross-Flow for Wine



Gentle and efficient filtration



Applications

Must



mechanical and microbial filtration before fermentation as de-sludge or final filtration of finished product instead of pasteurization

Wine

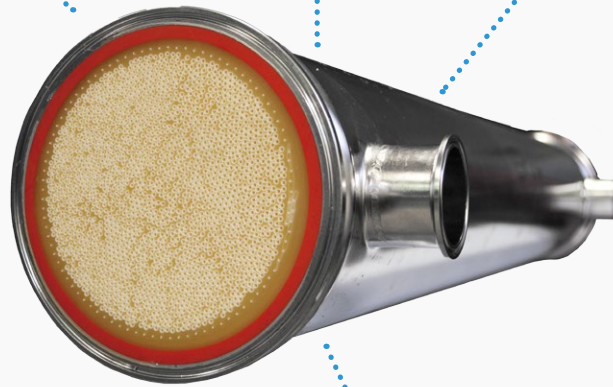


wines at various stages of production

Champagne



champagne and sparkling wines produced under pressure

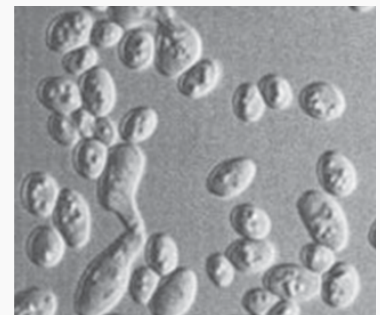
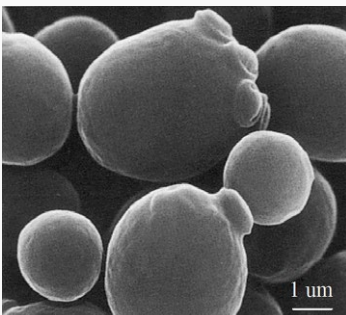


Stop fermentation

stopping primary and secondary fermentation of must and young wine at the required volume of alcohol

Wine spoilage

preventive and corrective microbial filtration in the case of wine spoilage and faults such as yeast *Bailii*, *Brettanomyces*, *Acetobacter* bacteria etc.



Benefits of our concept

Our concept 'Cross-flow for Wine' is a result of international collaboration of specialized companies from the Czech Republic, the Netherlands, Italy and Germany. Its main benefits are:

- System even for the gentlest wine makers
- Large choice according to the throughput and degree of automation – from manual one-module machines to multi-module fully automated
- Increased filtrate flow stability and fouling reduction due to reverse flow and backwash
- Steel units of filtration modules enable filtration of still and sparkling wines under excess pressure
- Excellent sanitation possibilities of the system - sterilisation capability up to pH 13
- 100% alcohol resistance
- Filtration trials possibility before purchase

No compromise in quality of wine

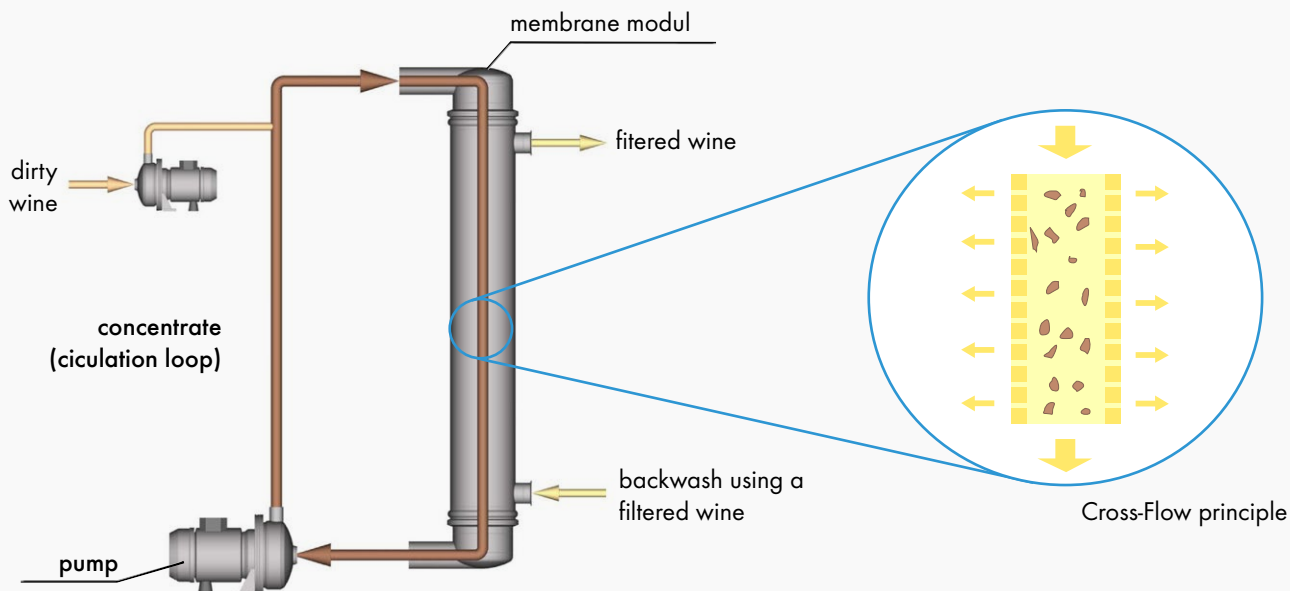
- Different pore structure of PP membrane ensures that the filtration is not so violent and preserves the original characteristic of wine. Therefore it is much gentler approach to wine than any of the rival cross-flow systems.
- The specially designed filtration modules design, together with liquid flow distribution in the system, minimizes the hydro-mechanical and heat effects on wine by 40 - 50% and also increases the self-cleaning ability of membranes.
- The equipment provides an option to clarify wine with more care without the burdening tangential circulation – in the same way as conventional dead-end filters, which is an advantage mainly for dealing with less disturbed and rare wines.
- Backwash of membranes using a filtered wine and without the use of compressed air excludes wine oxidation and mikrobiological contamination caused by atmospheric air.

Substantial time and cost savings

- The filter membrane has a high flow rate and at the same time it is more inert against protein and polyphenol clinging, as a result of which the filter does not clog up so much, filtration cycles can be longer and the cleaning is easier and of course less expensive.
- With its innovative system of automatic control and reverse flow backwash FCW handles up to 20% higher current output and the volume of filtered wine in one filtration cycle, compared with conventional cross-flow systems.
- Serial arrangement of modules allows up to 40% savings in energy requirements.
- The machine requires very little operation and it can work on its own for a long time without any operator attention.
- No further costs related with filtration equipment and waste, which is associated with filtration.
- Wine is made during one filtration step for a filling line.

How the system works

Functional diagram of the system

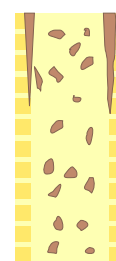
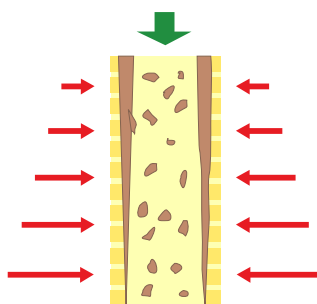


backwash of the membrane

the membrane after backwash

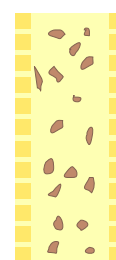
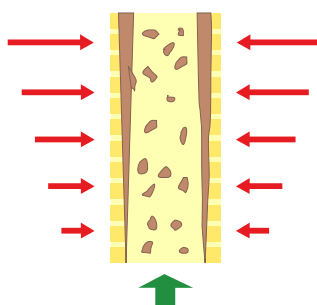
Conventional system - one-way flow


The circulation of the tangential flow in one direction only leads to an uneven surface membrane filter clogging, reduced efficiency of backwash and therefore less filtration throughput.




The system with reverse flow


With the automatic rotation of the tangential flow direction is used by more equitably the entire filter surface. Therefore backwash cycles are more efficient and cleaner membrane.



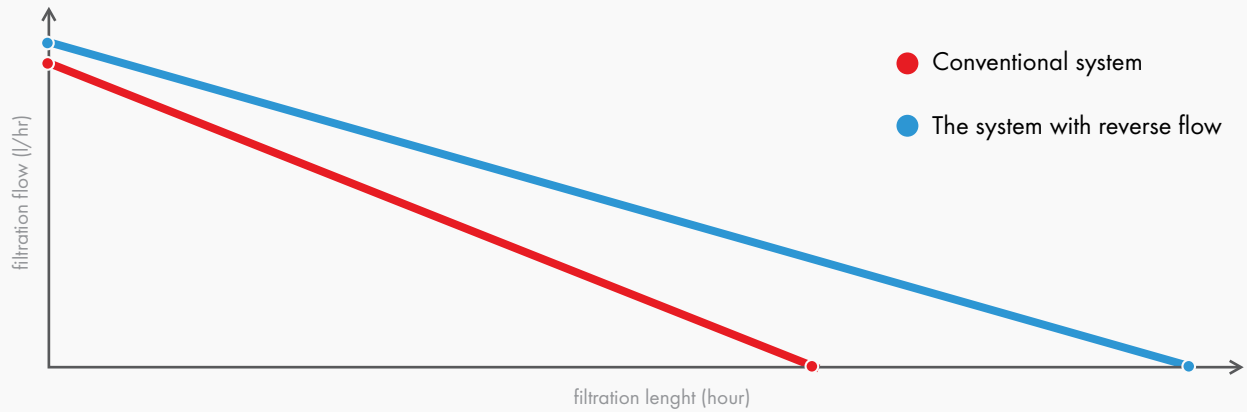
 unfiltered liquid

 Dirts

 direction and intensity of backwash

 flow direction in the loop

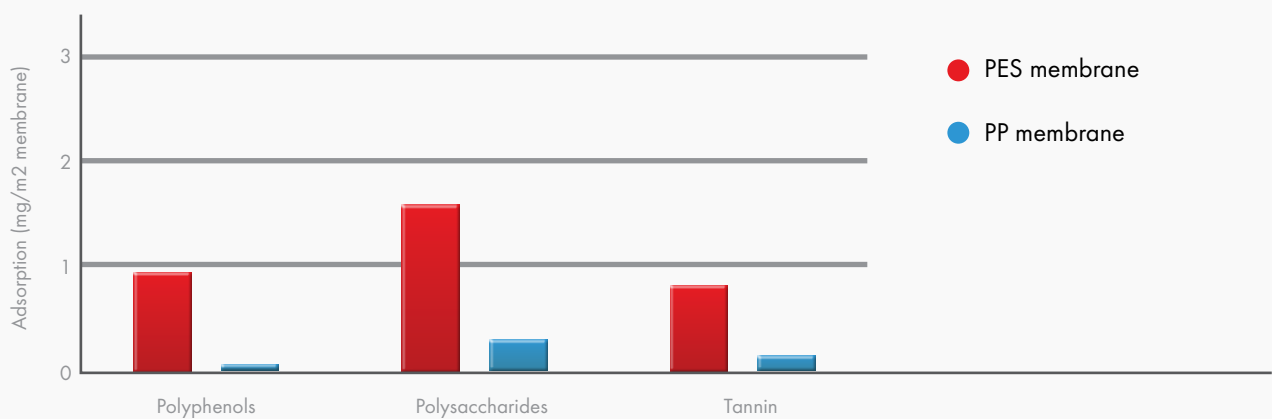
Length of filtration



Advantages of the system with reverse flow:

- Higher cleaning efficiency
- Increased filtration flow
- Greater capacity of the filtration cycle

Adsorption of polysaccharide, polyphenol and Tannin



Advantages of PP membrane in comparison with PES:

- Lower adsorption tendency of wine ingredients – gentler filtration
- Symmetrical pores – higher cleaning efficiency
- Greater resistance to proteins and abrasion
- Longer membrane lifespan
- 100% alcohol resistance

Basic product line

FCW 10, FCW 15

Level of Automation - basic:

- The system stops automatically when:
 - Lack of input wine
 - Filtrate flow declines bellow adjusted limit
 - The system gets over the set temperature

Type	Filtration area m ²	Number of modules	Throughput l/hour
FCW 10	10	1	500-1500
FCW 15	15	1	750-2000



FCW 20, FCW 30

Level of Automation - semi (PLC):

- Reverse tangential flow in loop
- Cleaning cycle with backpulse setting
- The system stops automatically when:
 - Lack of input wine
 - Filtrate flow declines bellow adjusted limit
 - The system gets over the set temperature

Type	Filtration area m ²	Number of modules	Throughput l/hour
FCW 20	20	2	1000-3000
FCW 30	30	2	1500-4500



FCW 20, FCW 40, FCW 60

Level of Automation - high (PLC):

- Adjustable modes of filtration according to the particular product
- Optional regimes of the system behavior (stop, emptying, rinsing, sanitation)
- The system enables long time filtration process without operator
- Touchscreen display provides visualization and ease use

Type	Filtration area m ²	Number of modules	Throughput l/hour
FCW 40	40	4	2000-6000
FCW 60	60	4	3000-9000



FCW is a modular system that can be equipped with a larger number of modules according to customer requirements for filtration area and performance.



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