

CrossFlow Solutions

The Pureflow™ Microfiltration system from Envirogen is based on the well established cross flow filtration principles

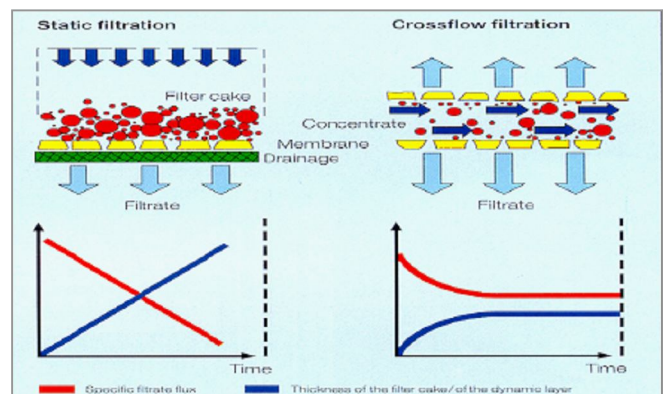
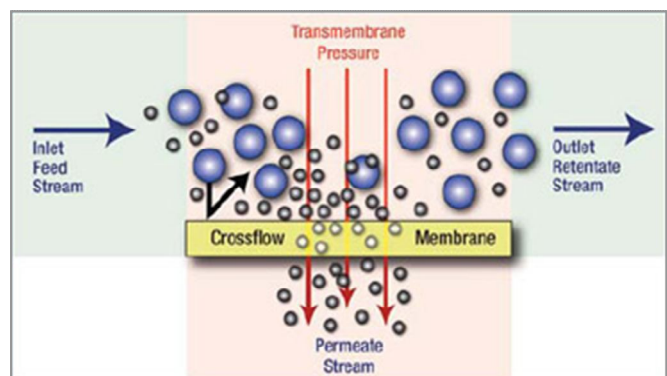
Used for the filtration of beers, wine, cider and water, the Pureflow system provides significant advantages when used in industrial-scale applications where reliability, consistency and operating costs are crucial considerations.



Technology

Cross-flow membrane filtration is a physical separation process. A feed stream passes across the membrane and is separated into two individual streams: the retentate and the permeate. The membrane offers an absolute 0.2micron barrier, allowing some components from the feed stream to pass (the permeate), whilst others are retained (the retentate). The structure of the membrane and its pore size determines which molecules will pass through

The driving force in the separation process is the pressure difference across the membrane. The required pressure for a certain process varies inversely with the size of the pores in the membrane. The smaller the pores, the greater the pressure needed. During traditional filtration, known as dead-end filtration, all of the influent passes through the filter with limited movement in the liquid. This results in a filter cake, which must be removed by mechanical force. In cross-flow filtration the liquid flows parallel to the membrane at high velocity. This has a number of comparative advantages over dead-end filtration, creating a positive influence on the running costs of production





Benefits

The PureFlow MicroFiltration System offers process flexibility and is both efficient and economical in a number of key areas:

- No significant increase in product temperature due to low energy input
- Long filtration runs between CIP's achieved by forward and reverse flow re-circulation allied to membrane pore structure
- Low chemical and energy cleaning cost achieved by unique "closed loop" CIP design giving small hold up volume
- No reverse filtrate flow or reverse pulse required maximising online time and minimising product losses
- Dia-filtration and product concentration efficiently achieved using pressure and flow control
- Fully enclosed filtration system eliminates the negative effects of oxygen pick up and minimises CO₂ losses.
- Exceptional product clarity and achieving >log 7 removal across the membrane system
- Application trials are conducted on site to provide scalable process data and optimised sustainable system performance. A range of membrane inserts can be provided for use in one of the skid mounted trial units



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