

Filtration for the Small Brewery

Brian Peters





Why Filter?

- Better for the style.**
- Makes beer more stable.**
- Makes beer more visually appealing.**
- More sales.**



What Effects Filtration?

-Beer Viscosity.

-Beer Turbidity.

-Filter Area.

-Pressure Drop.

-Permiablilty.



What Effects Filtration?

$$\text{Flow rate} = \frac{\text{Permeability} \times \text{Pressure drop} \times \text{Filter Area}}{\text{Turbidity} \times \text{Viscosity}}$$



Filter Options

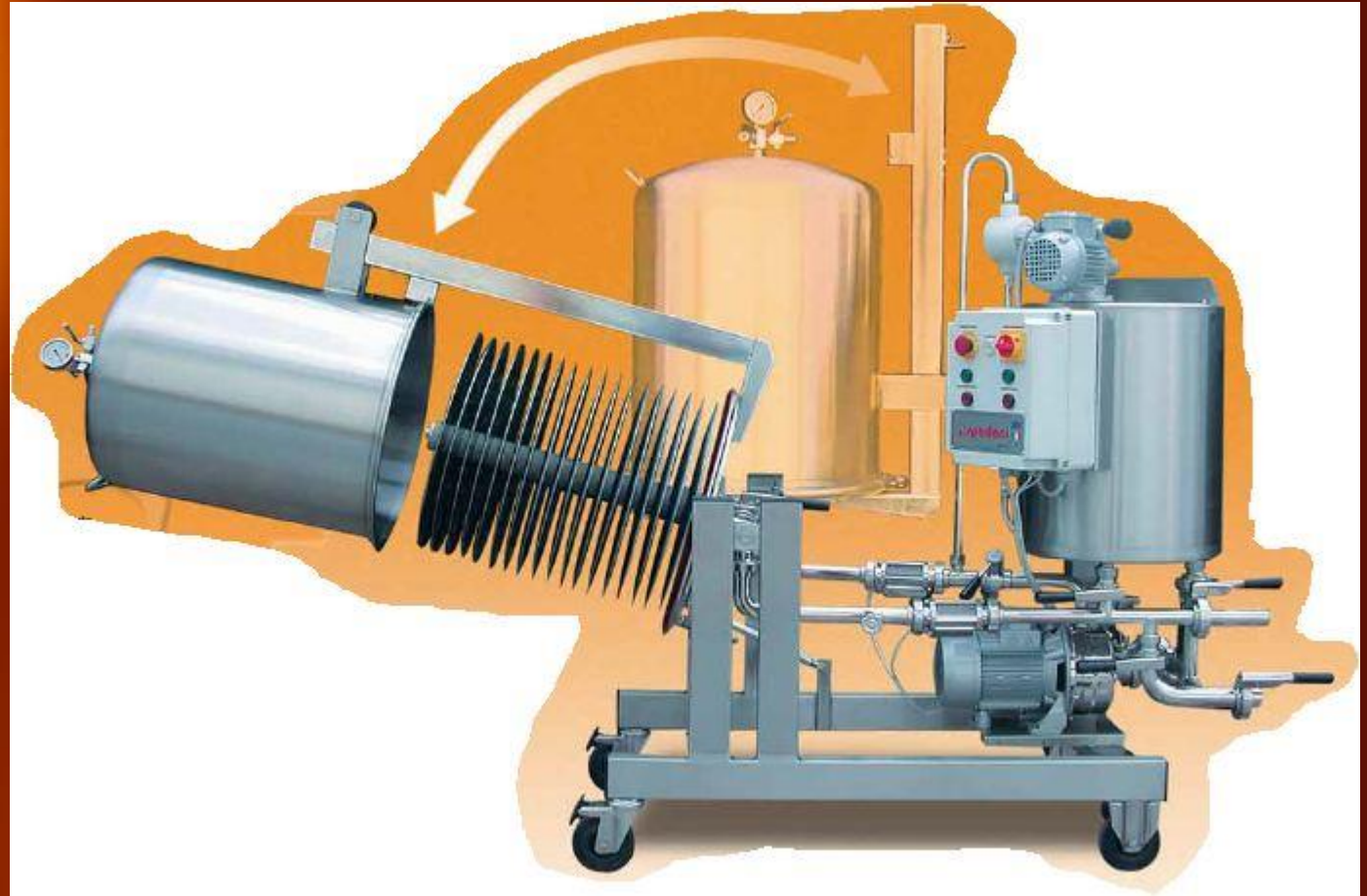
- Horizontal Pressure Leaf
- Plate and Frame
- Lenticular

Pressure Leaf



DCBL 100B

Pressure Leaf





Pressure Leaf

-Pros

- Ideal for large brewery.**
- Cost per BBL very low.**

- Cons

- Saftey-DE needs a respirator.**
- Spent DE hazardous.**
- O₂ pickup.**
- Limited depth range.**
- Need DE trap and possibly polish filter.**
- Long set-up and breakdown.**

Plate and Frame





Plate and Frame

-Pros

- Cheaper than pressure leaf.**
- No hazardous DE.**
- Easier set-up than pressure leaf.**
- No moving parts.**

- Cons

- Sheets are costly.**
- Not sanitary.**
- Big footprint.**
- Can not store until next week.**

Lenticular



Lenticular





Lenticular

-Pros

- Ideal for any small brewery.**
- Easier set-up than DE or plate.**
- Sanitary, no moving parts.**
- With backflush, good \$/BBL.**
- Small footprint.**
- Very low beer loss.**

- Cons

- Water intensive.**
- Cartridges are expensive.**
- Slower than pressure leaf or plate and frame.**
- Requires two housings for rough and fine.**

Compare

	Capital Cost	\$/BBL Media	Flow rate BBL/m ² /h	Set-up Breakdown Hours
DE Pressure Leaf	\$15,000	\$.15/BBL	4	4
Plate & Frame	\$5,000	\$1.5-3/BBL	2.5	3
Lenticular	\$2,000	\$1-2/BBL	1-2	2

Thanks!

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