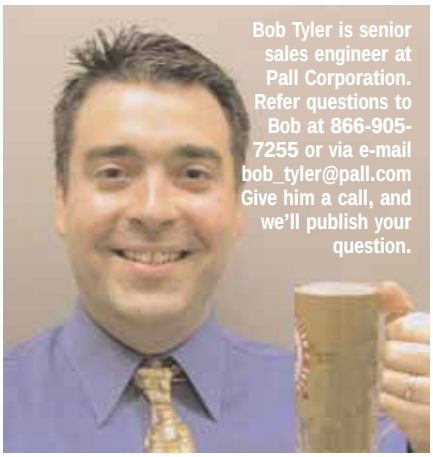
Ask Bob!



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Got a question about filtration issues? You've come to the right place... Just Ask Bob!

1) Bob, I currently have an old 40 x 40 plate and frame filter. The filtered product is great, and I like the fact that I can change the sheet micron rating for the different types of beers I am filtering just by changing out the sheets. Unfortunately, the plate and frame is getting old and parts are becoming very difficult to find. I've heard that lenticular filters are basically the same as filter sheets, except are in an enclosed system. Will buying a new 6.5K filter housing and filter modules at $100.00 justify the investment?

Beer losses are extremely low when using lenticular filter systems—so low, in fact, that you might not even recognize any beer loss during filtration. This additional recovery adds up very quickly. The ease of operation also offers some significant operational cost savings as well, especially if they are a backwashable design so you can get multiple uses out of the filters. There are no moving parts on lenticular filter housings, so buying parts like seals and gaskets are no longer a cost issue. Plate and frames are great for what they were built for; however, times have changed. If you're in the market for a new plate and frame, it would definitely be in your best interests to contact your local filter rep and ask about backwashable lenticular filters.

2) We have a small DE filter with horizontal leaves in a vertical vessel that seems to have unstable and too little pre-coat when starting up. We have to run circulation for an extended time to clear up the filtrate before we can go online. We also seem to have limited capacity for heel filtration when changing beer types. The scavenge screen seems full after just one filtration. How can we clear up these problems?

Your filter is probably between 2 and 6 m2 in size and might have only a bottom filling/filtration feed. These types of filters are usually wine filters that have been adapted for beer filtration. Since the internal flow distribution of your filter leaves something to be desired, try the following:

Do a pre-coat as you normally would. Push the water in the vessel out through the filtrate outlet. When the filter is empty, leave all valves open and lift the top. This should enable you to observe the cake distribution in the vessel. If most of the cake is on the bottom elements, you have a distribution problem. If not, the problem lies with either the seals or the leaves.

If too much cake is on the bottom elements, make sure that your pre-coat flow is between 10 and 18 hL/m2 of filter surface. Throttle down on the heel filtrate discharge. How much to throttle down or how long to keep the heal filtrate open during pre-coating is dependent of the severity of the distribution problem. Check on the cake after trying this to observe how the distribution is. Set up a procedure that assures good distribution. Also make sure that the speed is not too high. If it is, you'll notice a wash-off on one side of some of the leaves.

3) Bob, I produce very small batches of beer for my restaurant (about 8 bbls at a time). I filter about half of my beer and the other half is not filtered. I was lucky enough to find a used filter housing that I was thinking of using. Is there any upside to doing this? I want to filter my beer to increase its clarity. The used filter housing I have holds 6 filters. I believe the filters are considered a code 7 (one end is closed with 2 large diameter o-rings and the other end has a fin).

Using filter cartridges for primary filtration can be done. The two most important things to pay attention to are the flow rate and the beer clarity out of the maturation vessel. You want to ensure that you don't filter your beer at a rate higher than the filter manufacturer's recommended flow rate. The beer from the vessel should be as bright as possible with a low haze value and low suspended solids for the downstream filters to work efficiently. Use finings (if allowed) and ensure that you remove the yeast plug first. Don't allow it to enter the cartridge filter at the beginning of filtration or it will blind quickly. You want to make sure that you can clean the cartridges and reuse them to improve your cost.

Using filter cartridges for this process offers other advantages as well, the biggest advantage being ease-of-use. There's no need for DE in a filter cartridge system, and, therefore, no need to buy, store, handle and dispose of DE. Once filtration is complete, all you need to do is backflush, clean and sterilize the filters, then store the filter under CO2 pressure in the housing until the next time you plan on filtering.

4) I need to sterile filter my beer. My current filter train is as follows: A) DE filter, B) trap filters, C) plate and frame (sheet filters). I have a chance to buy a used filter housing that holds five code 7 filters. I plan on installing the filter system next to the bottling line. My bottling line runs at 130 bottles per minute. Can I use this filter housing for this application?

Sterile filtering beer is economical and easy to do if everything is sized properly. What's important is the flow per 10" filter module. The housing you need to match up to your bottling line needs to be bigger than 5 around unless it uses 40" filters when it will just do for short batch runs. Final membrane filters are expensive, so it's critical that you size these properly. For your particular flow rate, (130 bottles per minute, about 12-18 GPM), I would use a housing no smaller than a 12 around (20" filters). The reason why filter manufactures recommend low flow rates per filter is that these filters must be cleaned and reused many times to be economical. The higher the flow rate per filter, the quicker it blocks, the harder it is to clean and the more filters you use. If you decide to use the 5 around filter housing, you'll go though many more filters than you would if you used a large housing. Right now the housing is inexpensive. But over the long haul you'll use many more filters and that money that you saved on the housing will be spent many times over on filters. To give you an example, you'll likely need to change out the five filters every month. If you used a larger housing, you'd have to change out the filters every 4 months. So you'd go through around 36 filters per year with the larger housing, as opposed to 60 filters per year using the smaller housing. ■