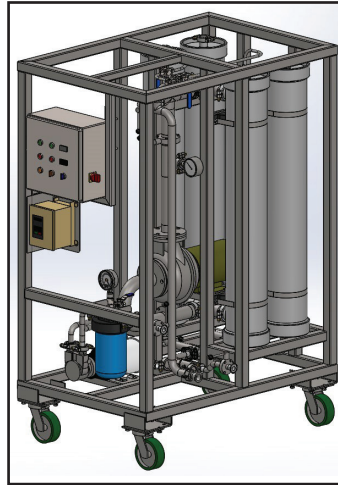
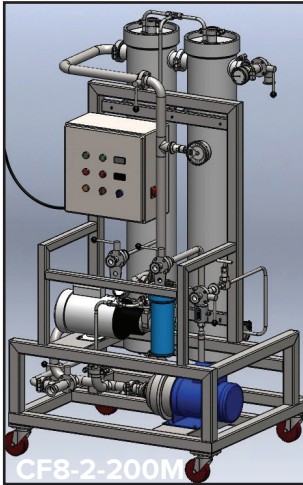


CROSS FLOW FILTERS FOR PURCHASE



TECHNICAL

Here is another classic example of a unique VA Filtration technology doing the job smarter: Lo-Cross-Flo microfiltration. After 5 years of in-field testing, we have a system that is robust, reliable and perfectly suited to wine filtration.

Spiral Wound Membrane Elements

The heart of our systems are 0.2 um PVDF spiral wound membrane elements selected for their quality and integrity under the most demanding filtration applications - they just don't break! Classic *crossflow* systems utilize hollow fiber membrane elements made up of between 5000 and 50000 hollow fibers, depending on the size of the system. If any fibers break during filtration, the integrity of the system fails and typically re filtration is necessary. With flat sheet elements, this is not a factor. Spiral wound crossflow systems are also able to achieve a much higher operating pressure than hollow fiber systems. This is key to the robustness of the systems. Our mobile systems have seen 4 years of service with the same elements without a single integrity issue. That's over 2 000 000 gallons of filtered wine.

Pumping System

Also a factor to consider when making your purchase is the amount of pumping that occurs within the system. All crossflow systems make use of centrifugal pumps. Classic hollow fiber crossflow requires very high crossflow rates (80gal/hr to 1gal/h filtered) in order to keep fluid velocity high within each fiber. If fluid velocity is not maintained, the fibers will plug. Once a fiber plugs, it is very difficult to unplug due to preferential flow conditions. Since spiral elements are not limited to maintaining high velocity in each straw, we decided that lowering the crossflow during wine filtration, and then increasing the crossflow during cleaning was the ticket to high quality wine filtration. Net result is decreased energy input into the wine during filtration resulting in less heating, oxidation and overall handling of the wine.

System Sizes and options

There are multiple options available depending on your needs. We have 2, 4, 6, 8 or 12 module systems available for purchase. We can include full automation or simple manual control.

Flow Rates possible

Red Wine	1.6–2 gal/min...per module
White Wine	2.8–3.2 gal/min...per module

Losses and Lot Sizes possible

All systems include a scavenger feature. This means the filter can be reduced to 2 operating elements by closing 3 valves. This reduces losses substantially to around 3 gallons per module. If smaller lots require filtration simply run the machine with only 2 modules.

Cleaning

Systems with less than 6 modules are cleaned using winery sumps as chemical mix tanks. Larger systems include CIP tanks on board. Systems are cleaned using 130F water; citric acid; TSP and Peroxide.