VA FILTRATION USA
110 Dodd Court
American Canyon, CA 94503
Tel : (707) 552 2616
Fax :(707) 552 3871
Web : www.vafiltration.com

OPERATING MANUAL – LO-CROSS-FLOW CF8-2-200M

January, 2017

TECHNICAL SPECIFICATIONS

Model	: CF8-2-200M
Filtration rate	: 150-200 gallons per hour Max
Maximum operating pressure	: 50 psi
Power requirement	: 110 V singe phase power
Maximum cleaning fluid temp	: 120°F
Cleaning chemicals	: Memclean, Memox
Expected loss	: 3 – 5 gallons per run

TECHNICAL SUPPORT

Technical support is available Monday through Friday 7:30 am – 5:00 pm. We do not provide technical support on the weekends unless previously arranged.

SAFETY

It is imperative that safety goggles are worn by all operators operating the equipment at all times!

IMPORTANT TO REMEMBER!

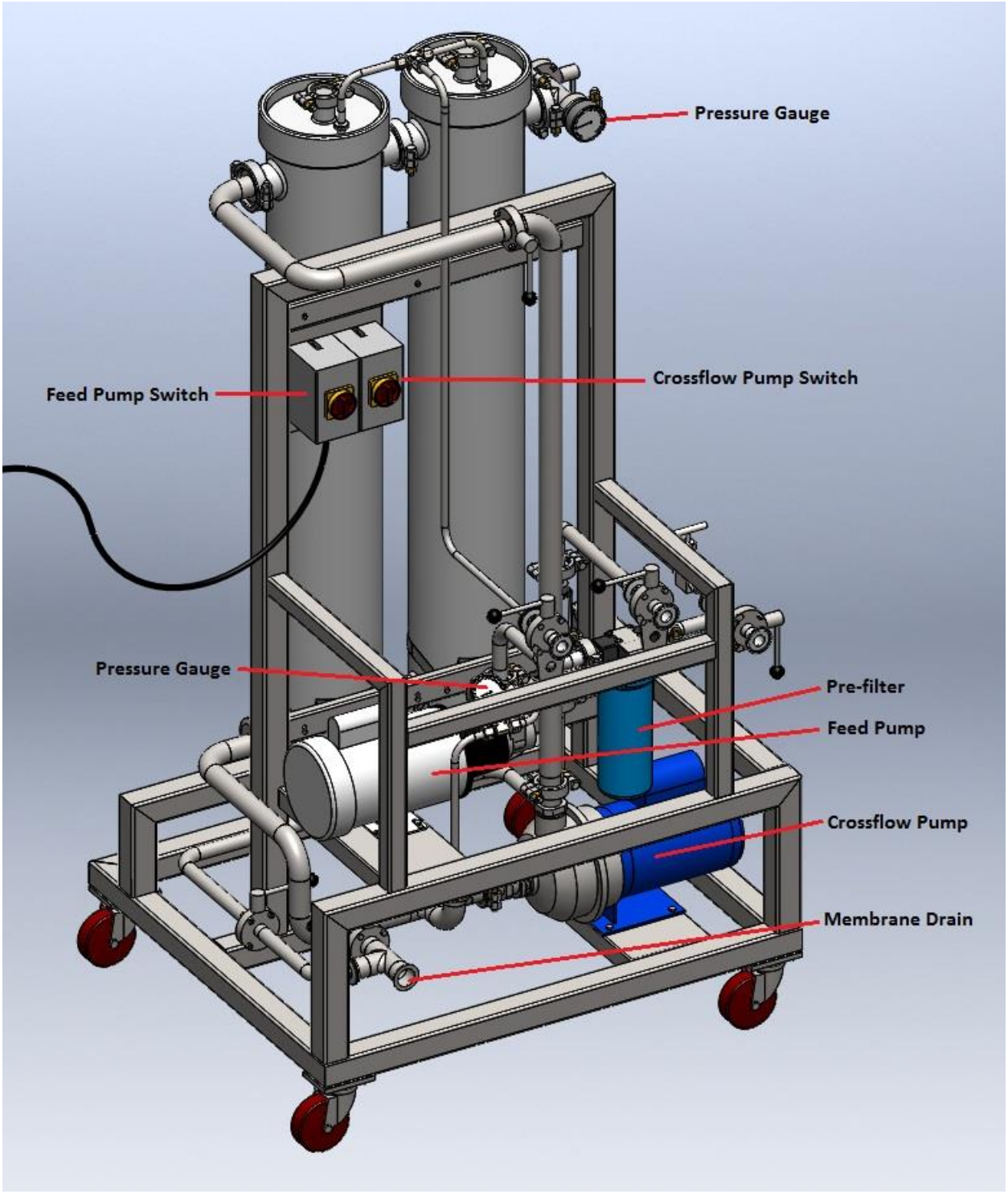
- Do not use chlorine in any form!
- Make sure you do not run the pumps against closed valves or without liquid.
- PLEASE, READ THESE INSTRUCTIONS COMPLETELY, PRIOR TO OPERATION. WE ARE NOT RESPONSIBLE FOR WINE LOSS DUE TO NEGLIGENCE OR FAILURE TO FOLLOW THE CORRECT OPERATING PROCEDURE!
- Check pre-filter regularly for debris build-up and clean if necessary.

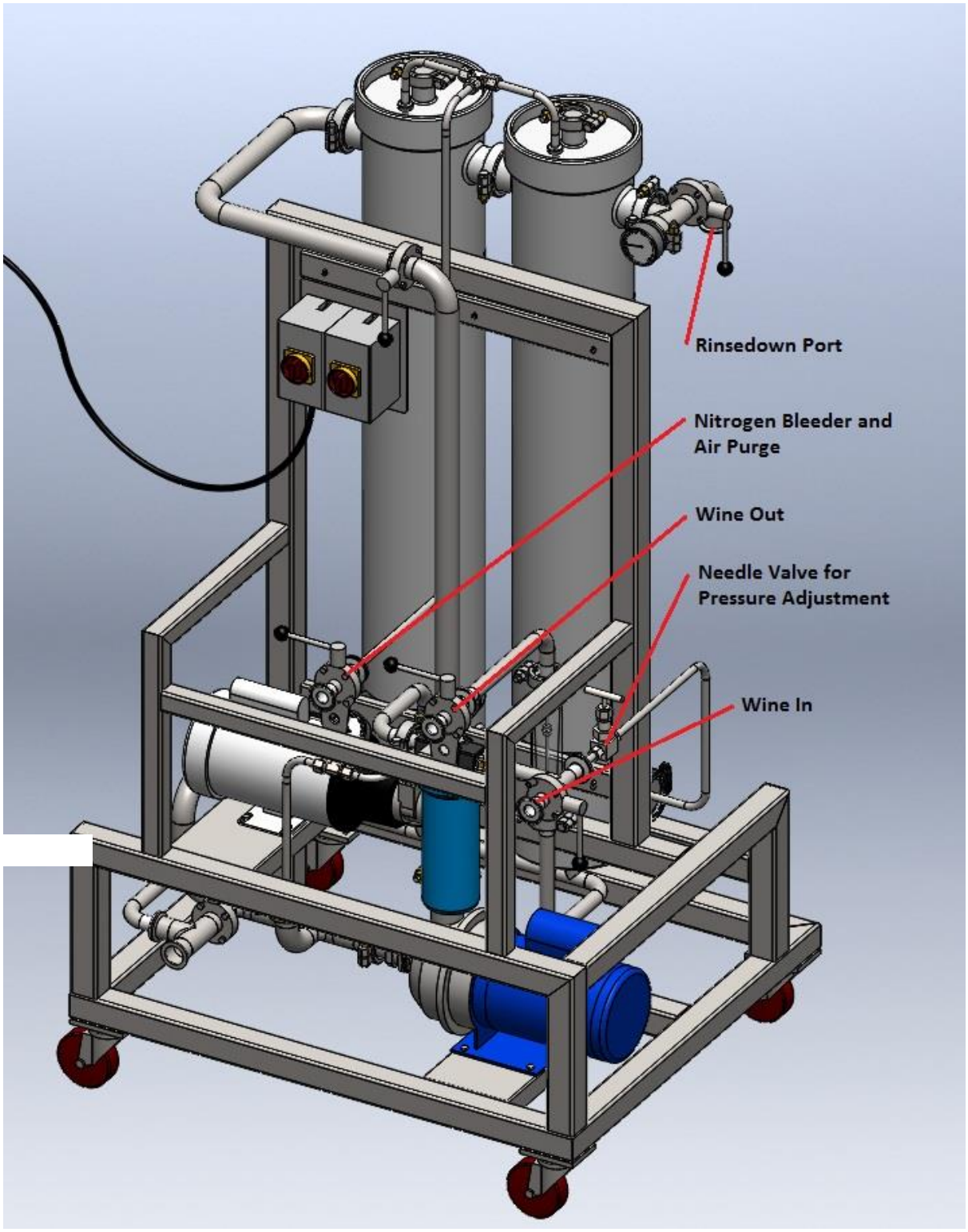
BACKGROUND ON THE SYSTEM

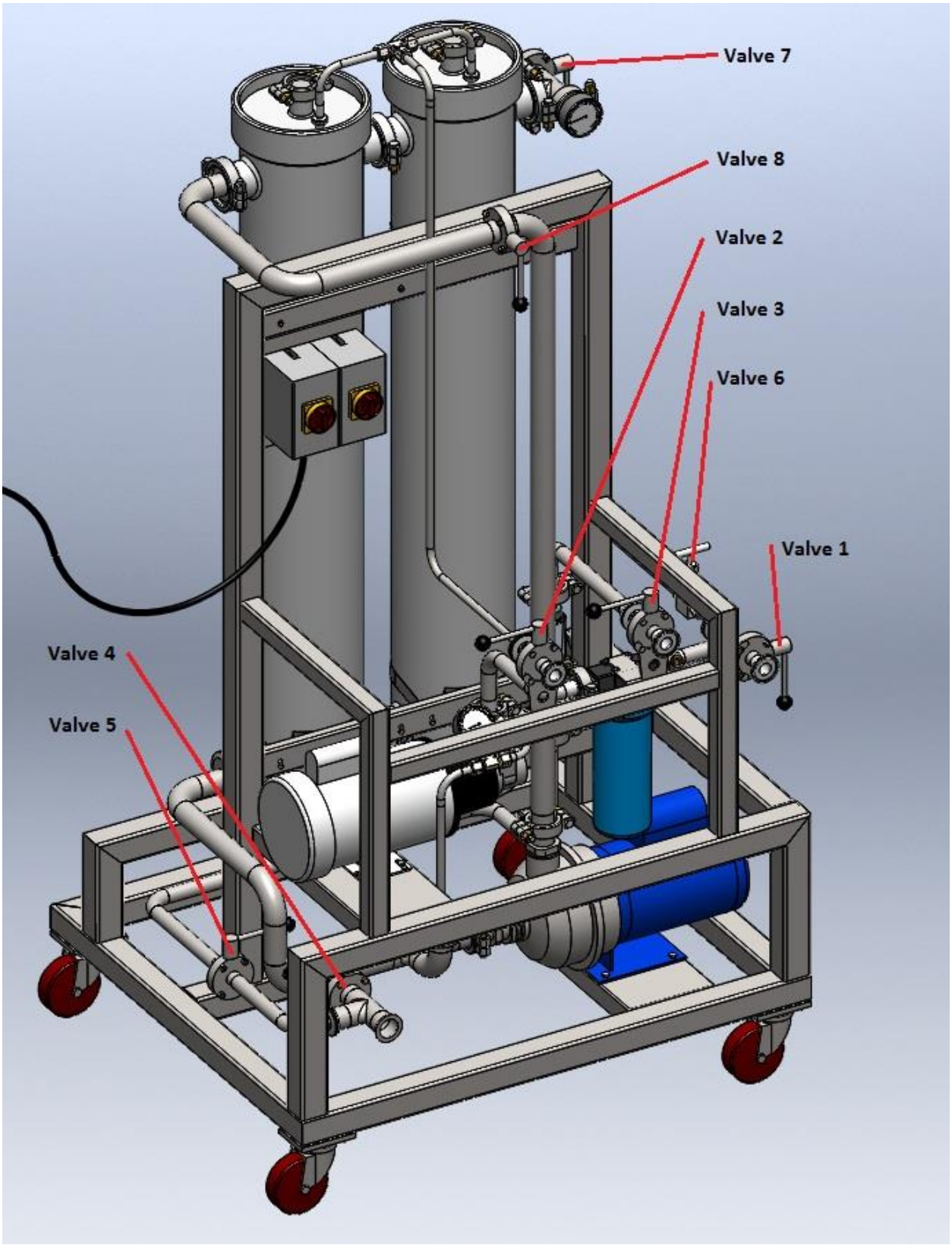
The CF8-2-200M, hereinafter called the SYSTEM has been designed for the filtering of smaller lots of wine. The system uses 0.2 um PVDF spiral wound membrane elements, selected for their quality and integrity under the most demanding filtration applications – they just don't break! Classic cross flow systems utilize hollow fiber membranes made up of between 5,000 and 50,000 hollow fibers, depending on the size of the system. If any of the 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.

Flow rates will greatly depend on the wine temperature, turbidity, RS levels and bacteria loads. The cleaner the wine, the longer the system is going to deliver a constant flow rate. The optimal wine temperature for filtration is White – Minimum 40°F and RED minimum 50°F.

OVERVIEW OF THE SYSTEM




Rinsedown Port
Nitrogen Bleeder and Air Purge
Wine Out
Needle Valve for Pressure Adjustment
Wine In


Valve 7
Valve 8
Valve 2
Valve 3
Valve 6
Valve 1
Valve 4
Valve 5

GETTING STARTED

Electrical

- Connect the power cable to a 110V outlet
- Do not turn the pumps on yet

Water rinse

1. The *SYSTEM* is stored in citric-sulfur solution.
2. Open ALL valves.
3. Liquid will drain out of the system via gravity, when liquid is just dripping, close all valves.
4. Unscrew and drain the *PRE-FILTER HOUSING*.
5. Fill up a 30 gal tub with clean, cold water.
6. Connect sanitized wine hoses to the *WINE INLET* and *WINE OUTLET* valves.
7. Insert the end of the hose connected to *WINE INLET* valve into the tub and the *WINE OUTLET* hose to the drain.
8. Open *VALVES 1, 2, 3* and *8*. Keep all other valves closed.
9. Switch the *FEED PUMP* on.
10. Water will fill the *SYSTEM* and eventually exit through *VALVE 2*.
11. When water is seen exiting the *VALVE 2*, close the *VALVE 2.* This indicates that the *SYSTEM* is filled.
12. Turn on the *CROSSFLOW PUMP.* The *SYSTEM* is now in the filtration mode and is being rinsed off of residual citric – sulfur solution.
13. Open *VALVE 6* for 60 seconds to ensure that the entire system is rinsed and then close it.
14. Periodically taste the water exiting from the *WINE OUTLET.* When no citric-sulfur can be tasted any more, turn the *CROSSFLOW PUMP* off first and then turn off the *FEED PUMP.*
15. Open all valves and allow the *SYSTEM* to fully drain.
16. Unscrew and drain the *PRE-FILTER HOUSING*.
17. When the water is only dripping, connect the nitrogen line to the *VALVE 2*.
18. Open *VALVES 2, 4* and *5* and close all other valves.
19. Purge the *SYSTEM* with nitrogen for 5 minutes making sure that the pressure doesn't exceed 25 PSI.
20. Shut off and disconnect the nitrogen.
21. Close *VALVES 4* and *5*.

22. The *SYSTEM* is now ready for wine filtration.

23.

Wine processing

1. Connect the *WINE INLET* hose to the inlet of the *SYSTEM* and to the tank containing the wine that is to be filtered.
2. Connect the *WINE OUTLET* hose to the tank to which you are filtering into with a T valve to taste out for water.
3. Open the valves on both wine tanks and make sure the tanks are vented.
4. Open *VALVES 1, 2, 3* and *8* on the *SYSTEM* and make sure that all other valves are closed including the *VALVE 6* (needle valve).
5. Turn on the *FEED PUMP* and wait for wine to exit *VALVE 2* – Close when wine seen exiting.
6. Start the *CROSS FLOW PUMP.*
7. The *SYSTEM* is now in the filtration mode.
8. Open the *VALVE* 6 fully by turning it counterclockwise.
9. Monitor the flow of the wine on the *FLOW METER* and the operating pressure on the *PRESSURE GAUGES.*
10. The operating pressure and the flow rate are controlled with *VALVE 6* (Needle Valve). If the pressure is increasing rapidly, open *VALVE 6* to maintain system pressure under 50 PSI.
11. The operating pressure shouldn't exceed 50 PSI and the maximum flow rate is 3.5gpm (210 gal/ hour)
12. If the flow rate of the *SYSTEM* drops below 0.5 gpm, the system will have to be cleaned. Follow the cleaning instructions below.

End of Filtration

1. At the end of filtration while the *SYSTEM* is running, disconnect the hose from the now empty tank and "walk" it to the *WINE INLET* valve with the filter running.
2. After all the wine has been sucked from the hose into the system, switch off both pumps and close *VALVE 1* immediately.
3. Check feed tank and ensure that filtration is complete.
4. Connect the nitrogen line to the *WINE INLET* and set pressure at 20 PSI.
5. Make sure *VALVE 6* is closed at this point.
6. Open *VALVES 1* and *3* and watch for flow at the *FLOW METER.*

7. Make sure that the pressure on the machine does not exceed 30 PSI at this point.
8. Purge for a few minutes or until bubbling and foaming is observed in the flow meter. This indicates that the majority of the wine has been pushed through.
9. Stop the nitrogen flow and close *VALVES 1* and *3* and close your filtered wine tank valve.
10. Disconnect the nitrogen line.
11. Open *VALVE 2* **slowly** to bleed excess nitrogen from the system and close.
12. Proceed to cleaning.

Machine Fouled

1. When filtration drops below 0.5gpm or the pressure reaches 50 PSI, switch off the pumps and close valve on the tank containing unfiltered wine.
2. Check the *PRE-FILTER* in the blue housing for possible blockage. If heavily fouled, rinse and continue filtration. Otherwise, proceed to cleaning the *SYSTEM.*
3. Connect the nitrogen line to the *WINE INLET VALVE* hose or the valve directly and set pressure at 20 – 25 PSI.
4. Close *VALVE 6.*
5. Start purging the *SYSTEM* with nitrogen in order to push all clean wine into the filtered wine tank.
6. Make sure that pressure on the pressure gauges on the machine does not exceed 50 PSI at this point. If the pressure starts to rise, depressurize the machine by **slowly** opening the *VALVE 2*.
7. When foaming and bubbling are seen in the flowmeter, shut off and disconnect the nitrogen line.

8. Open *VALVE 2* **slowly** to bleed excess nitrogen from the system and close it.
9. Proceed to cleaning.

Middle of the run cleaning – hot water flush

1. Open *VALVES 4, 5* and *7* and allow the system to drain – this will be unfiltered wine.
2. Allow it to drain from the *SYSTEM*. You may collect this unfiltered portion of wine and return it into the **unfiltered wine tank** or you can simply discard it.
3. Connect the hot water line to the *MEMBRANE DRAIN.*

4. Open *VALVES 4, 5 and7*. Close the VALVE 8. Flush the system with hot water (120 F maximum) until the water exiting the *VALVE 7* is clear or slight pink.
5. Turn off the hot water and run the cold water through the *SYSTEM* for a couple of minutes to cool it off.
6. Open the *VALVE 8* to ensure that the entire system is rinsed.
7. Shut off the water.
8. Open all the valves and let the *SYSTEM* drain.
9. Connect the nitrogen line to the *VALVE 2.*
10. Open *VALVES 2, 4* and *5.*
11. Purge the *SYSTEM* with nitrogen for 5 minutes ensuring that the pressure does not exceed 25 PSI.
12. Shut off and disconnect the nitrogen line and close *VALVES 4* and *5*.
13. The system is now ready for the filtration to be continued.

End of filtration cleaning

1. Follow "End of filtration" procedure to get the system empty.

2. Follow "Middle of filtration cleaning – hot water flush" procedure.

3. Drain the system. Nitrogen is no longer needed.

4. Dissolve one bag of **Memclean** in 30 – 50 gallons of hot water.

5. Pump this solution through the system and into the drain following the "water rinse" procedure.

6. Drain the system.

7. Dissolve the second bag of **Memclean** in 30 – 50 gallons of **cold** water and circulate this solution through the system for 10 minutes by placing both, inlet and outlet hoses into the tub containing **Memclean** solution.

8. After 10 minutes, add 900 ml (1 quart) of **Memox** to the solution and let it circulate for another 10 minutes.

9. Switch off the *CROSSFLOW PUMP* and then the *FEED PUMP* and close the *WINE INLET* and the *WINE OUTLET* valves.

10. Open the *VALVE 2* so that the *SYSTEM* can gas off.

11. Unplug the *SYSTEM* and disconnect the hoses.

12. If rented, the *SYSTEM* should be returned to VA Filtration in this state.

13. If purchased, leave the *SYSTEM* in this state overnight to soak. The following morning, drain the machine and re-circulate one bag of **Memclean** in 30 gallons of hot water. Repeat if necessary. The liquid should appear pale yellow and the pressure should not exceed 5 PSI. This indicates that the *SYSTEM* is clean.

14. Turn off both pumps, drain the *SYSTEM* and repeat the "water rinse".

15. Dissolve one scoop of citric acid in 30 gallons of cold water and recirculate through the *SYSTEM* for 10 minutes.

16. Add half a scoop of potassium metabisulfate to the solution and recirculate for another 10 minutes.

17. Switch both pumps off, unplug the *SYSTEM* and disconnect the hoses. Wipe off the SYSTEM and store in this state.

TROUBLESHOOTING

<u>The flow rate is too slow</u>

Cause

- The wine is too dirty
- Pre-filter is blocked
- High RS level
- High bacteria level
- The system is fouled and requires cleaning
- The operating pressure is too low

Solution

- Check the pre-filter and clean if necessary
- Adjust the needle valve and allow the feed pump to deliver more pressure
- Perform a hot water flush or a chemical cleaning