

Oenoflow™ PRO XL-S Crossflow Microfiltration System

Description

Since 1946, Pall has pushed the limits of science and technology to solve the most complex filtration, separation and purification challenges. The Oenoflow PRO XL-S System was built to help wineries achieve two important goals:

- Reduce energy usage to support goals for net zero carbon emissions
- Reduce water usage given considerable water shortages experienced in many regions

Data shows significant reductions in both energy and water usage of up to 60% with Oenoflow PRO XL-S when compared to traditional Oenoflow systems.¹

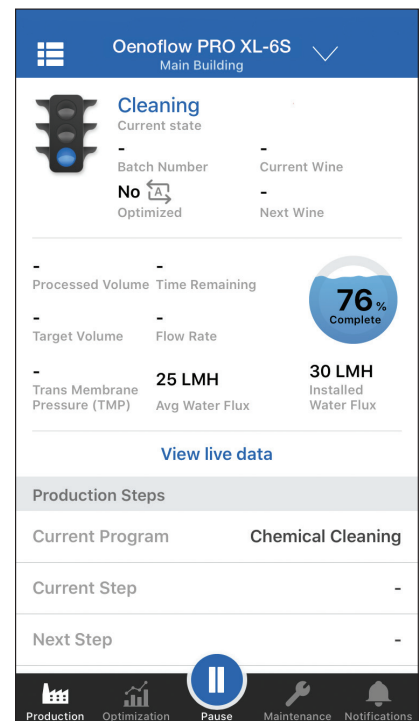
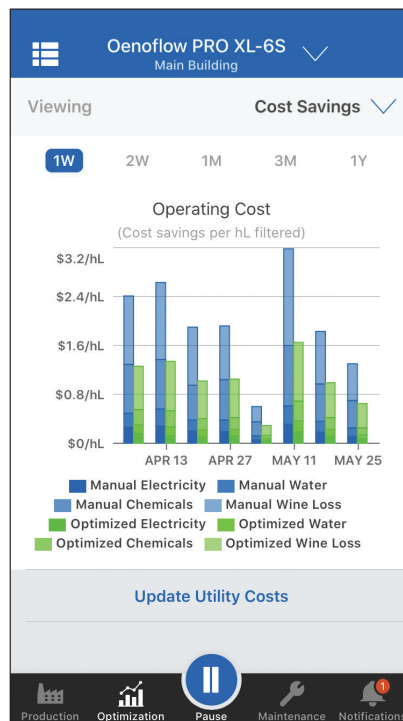
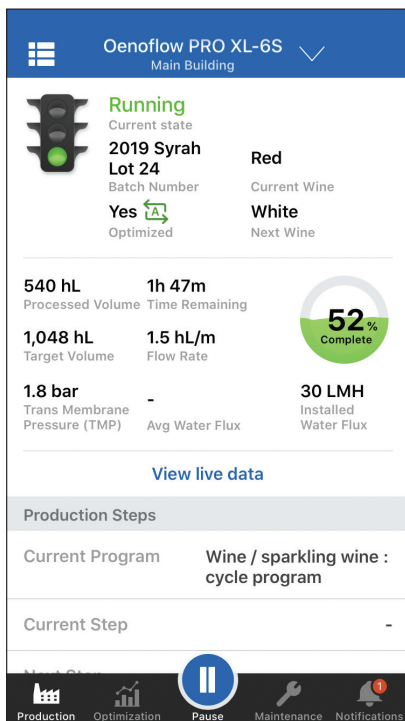
The Oenoflow PRO XL-S systems are specifically designed to meet the needs and requirements of mid-sized wineries. Clarification is achieved in a single process step without the need for filter aids, centrifugation or significant impact on the organoleptic characteristics of the wine. By increasing yields, reducing waste volumes and maintaining more consistent filtrate quality, the fully automated systems



Oenoflow PRO XL-S System

provide a cost saving sustainable alternative to traditional wine clarification methods.

With adjustable operating cycles, Pall's proprietary Low Concentration Volume (LCV) option, and automatic chemical dosing, the Oenoflow PRO XL-S system is the smart solution for reliable and economical wine clarification. Additionally the small batch program provides the flexibility required by most modern wine cellars, packagers and mobile bottlers.



Environmental Impact

The Oenoflow PRO XL-S systems incorporate unique features which enable wineries to perform clarification with the lowest environmental impact while maintaining wine quality. These include:

- Pall's unique Optimizer algorithm which has been shown to reduce energy use and water consumption when compared to traditional Oenoflow systems.
- PVDF membranes with high mechanical strength for longer service life
- High area, high flow modules for more compact and more economical systems
- Back pulse capability for increased system productivity
- Transparent module housings to confirm filtrate quality and enhance troubleshooting capabilities
- Fully automated working cycles for unattended operation and reduced labor and downtime
- On board concentration and filtrate tanks for operation independent of winery conditions
- Proprietary LCV option for high wine yield
- Small batch program isolating 1 module for efficient processing of batches up to 1000 L
- Water "solo" back flushes for highly effective solids removal
- Automated chemical dosing for safe and easy cleaning

Oenoflow PRO XL-S System Components

The Oenoflow PRO XL-S systems are fully automated, modular systems available with 4 up to 6 crossflow filtration modules. All metal wetted parts are 304 Stainless steel. The piping manifold, membranes, pumps and instruments are mounted on a mobile frame which includes the following:

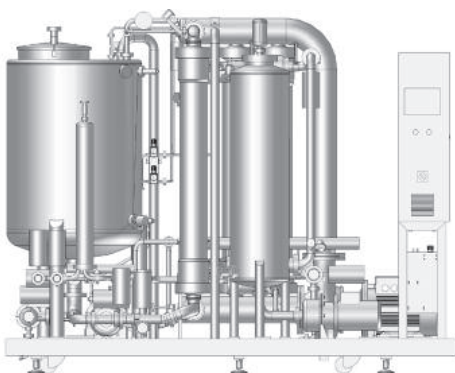
- Stainless steel pre-filter screen for large particles
- On board concentration/cleaning tank
- Feed pump
- Circulation pump
- Filtrate reservoir
- Filtrate/back flush pump
- Magnetic flow meter with batch control
- CIP system with 1 micron, 30 inch water filter and temperature control
- Automatic chemical dosing with 3 supply inlets
- Touch screen PLC
- Pressure, temperature and dry run protection
- A power jack for an external transfer pump

Oenoflow PRO XL-S Standard Options

The following options are available for additional supply:

- LCV with small batch program
- Nitrogen purge and blanketing
- Spray ball kit for T1
- External bleed
- Manual dual pre-filter screens
- External transfer pump²
- Tele-service adaptor
- Stainless steel dummy modules for future expansion capacity
- High Pressure (HP) option for treatment of sparkling wine under isobaric conditions
- Conductivity meter

Front view



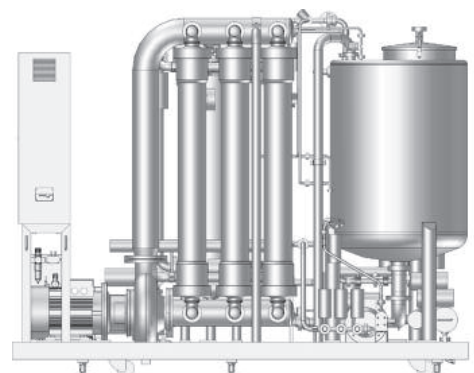
Left side view



Right side view



Rear view



Oenoflow XL Membranes

The Oenoflow PRO XL-S modules incorporate Pall's proven symmetric hollow fiber membranes. The large diameter, high flow modules with 21.5 square meters of filter area, have at least twice the filter area of typical competitive hollow fiber modules. The module components include:

Membrane:	PVDF
Potting:	Epoxy resin
Sleeve:	Polypropylene
Housing:	Transparent polysulfone
Seals:	Ethylene Propylene copolymer

Compliance

Oenoflow PRO XL-S systems are CE to demonstrate compliance with relevant regulations including the European Pressure Directives.

Various Oenoflow modules have been qualified for compliance to specific regulatory standards for products coming into contact with foodstuffs. Please contact Pall for details.

Operating Conditions

Wine Filtration

Inlet pressure: 0.5 bar to 3.5 bar (7 psi to 50 psi)

Temperature: -4 °C to 25 °C (24 °F to 77 °F)

Maximum temperature for cleaning: 65 °C (150 °F)

Standard Filtration Skid Specifications

Model	No. of Modules	Filter Area (m ²)	Average Flow Rate ³	Length	Width	Height	Weight (empty)
Oenoflow XL-4S	4	86	40 - 60 hl/h (1050 - 1580 gal/h)	2.70 m (8.86 ft)	1.20 m (3.94 ft)	2.15 m (7.05 ft)	1550 kg (3417 lbs)
Oenoflow XL-5S	5	107.5	50 - 75 hl/h (1320 - 1980 gal/h)	3.00 m (9.84 ft)	1.20 m (3.94 ft)	2.15 m (7.05 ft)	1590 kg (3505 lbs)
Oenoflow XL-6S	6	129	60 - 90 hl/h (1580 - 2380 gal/h)	3.00 m (9.84 ft)	1.20 m (3.94 ft)	2.15 m (7.05 ft)	1690 kg (3725 lbs)

¹ Reductions in energy and water usage are based on Pall's own trial results and actual reductions may vary.

² This option is supplied as an external equipment option mounted on its own mobile frame.

³ The flow rates for the various Oenoflow XL models are averages for the complete filtration cycle, and are dependent on the wine characteristics and pre-treatment.



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