



Food and Beverage



**Pall® Oenofil Filtration System**  
Automation, Control and Security for the Bottling Line

# Pall® Oenofil Filtration System

Controlling the filtration process is a key element in achieving quality wines. As cartridge filtration is the last process step prior to bottling, it is critical to ensure removal of particulates and microorganisms that can result in re-fermentation, turbidity and off-flavors post bottling.

The Pall Oenofil system combines years of process filtration experience, advanced automation and superior cartridge technology to provide cold microbiological stabilization of wine with the highest level of process control, security and brand protection.

## Oenofil Concept

Optimal filtration flow rate, selection of cost saving pre-filtration and installation of membrane filters validated for removal of wine specific organisms are all critical factors for successful wine microfiltration. However, proper rinsing, cleaning and sanitization to ensure complete system hygiene are just as critical. The Oenofil automated cartridge filtration system design incorporates these principles.

With Pall's experience in filtration and understanding of how each stage is interrelated, our Oenofil system enables wineries to reduce filtration costs without sacrificing quality. Streamlining filtration, rinsing and sanitization with optimized protocols can provide up to 30% increased filter service life. Additionally, the flexible working sequences can be combined for cycle programming allowing unattended system operation for reduced labor and downtime.

Depending on the individual customer circumstances, the Oenofil can be equipped with a Clean in Place (CIP) system to provide proper cleaning, sanitization and storage at the recommended flow rates, chemical concentrations and temperatures.

This system, if required, can also control downstream washing and sanitization of the filler and auxiliary equipment, like the bottle washer, for complete process control via a single interface and operation independent of the winery conditions.

To protect the wine quality, all Oenofil components are sanitary and all utility fluids including rinse water, steam and gas for integrity testing and wine recovery are filtered down to sub-micron levels.

With systems in operation for over ten years and Pall's extensive knowledge of wine filtration, the Oenofil system guarantees process security at the lowest possible operating costs.





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## Security at a Lower Cost

By implementing the Oenofil system, wineries can reduce their overall filtration costs and increase process efficiency. The Oenofil cost saving benefits include:

- Complete process automation for reduced downtime and labor costs
- Standardized production, cleaning and sanitization protocols for increased filter service life (20-30% typical increase)
- Production history and parameter trend recording for easier troubleshooting, system maintenance and documentation for HAACP
- Automated integrity testing ensures reproducible and validated micro-organism removal
- Clean water and chemical supply at the recommended conditions result in optimal cartridge performance
- Compact design for minimal footprint, reduced wine loss and low water consumption
- Sanitary design ensures hygienic production and biological security
- The proprietary sanitary vent design prevents product loss during venting

## The Engineered System

The Oenofil is a staged cartridge filtration system designed to be installed directly upstream of the filling line. The compact base system consists of pre-filter and final filter housings arranged in series with all piping, valves and instruments assembled and electrically connected for easy installation and short start up times. The wine process connections and sample ports are located on one side for easy access.

With safety and hygiene as the main design criteria for the system, all connections are sanitary tri-clamp. The proprietary sanitary vent configuration prevents wine loss during system start up and the product contact valves are supplied with double proximity switches for maximum security.

The base Oenofil system is available in the following sizes:

System	Cartridges	Flow Rate	
		l/h	gal/hr
Oenofil 0830	8 x 3 high	Up to 90	Up to 2375
Oenofil 1230	12 x 3 high	Up to 130	Up to 3430
Oenofil 1830	18 x 3 high	Up to 200	Up to 5285

A Duplex Oenofil system is also available. This allows quick change-over from one set of filter housings to the other in the case of cartridge fouling or wine changes.

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## Meeting Expectations

To meet the requirements of various wineries, the base unit can be combined with the following options to allow for operation independent of the winery conditions.

Our wine system specialists are available to assist in selection of the appropriate system and options to meet the specific winery requirements.

- Pre-filter Extension
- Clean In Place (CIP) System
- Water Heating System
- Steam System
- Chemical Dosing System
- Wine Temperature Control System

## Options

### Pre-filter Extension

In the case that particulate matter, including diatomaceous earth, crystals, sediments or particles left over from upstream processing are present in the wine, Pall recommends the addition of a trap filtration stage.

### CIP System

The CIP system can provide filtered water and cleaning solutions to the filling line or the bottle washer to ensure the hygiene of the complete bottling process.

### Water Heating System

This option enables the CIP to function completely independent of the winery conditions for the management of washing, cleaning and hot water sanitization for the whole packaging area. During sanitization, water is re-circulated to minimize water and energy consumption.

### Chemical Dosing System

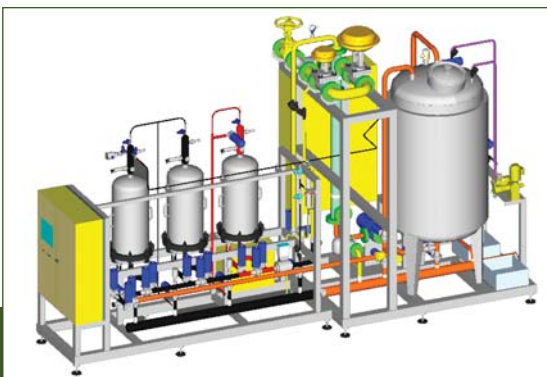
The CIP unit can also be fitted with automatic dosing of chemical solutions. Wineries that utilize chemicals like peracetic acid can sanitize the entire Oenofil system and, if necessary, the downstream piping and filler. A separate dosing pump can be used for the preparation of caustic solution for cleaning the filling machine.

### Steam Sanitization System

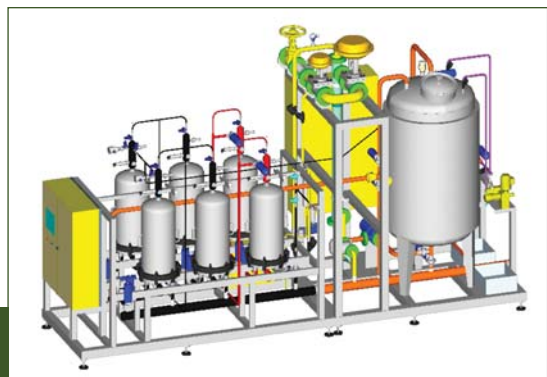
Like the water heating and chemical dosing systems mentioned above, the Oenofil system can be equipped with a system for customers using steam for sanitization. With this option, food grade steam is used to sanitize the Oenofil system.

### Wine Temperature Control System

Cold wine filling can result in condensate formation on the outside of the bottle creating a potential problem during labelling. A wine temperature control system can be employed to warm up the wine, preventing condensation and also providing better management of the filling levels.



Standard System



Duplex System

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## The System Software

The Oenofil system is controlled with a touch screen PLC that enables wineries to bottle their product with microbiological safety and process efficiency. The software contains working sequences utilizing Pall's extensive experience in wine filtration resulting in consistent and repeated cartridge performance.

Filtration, cleaning, sanitization and integrity test programs can be combined for cycle programming allowing for unattended system operation. Sanitization and integrity test sequences can be programmed to run overnight enabling the Oenofil system to be production ready at the start of each day for considerable reduction of downtime and simplification of the production start-up. At the end of each filtration, during wine recovery, the Oenofil system is pressurized with gas to reduce wine loss and increase production yield. The recovered wine can be pushed downstream to the filler or returned to the feed tank to accommodate various customer circumstances.

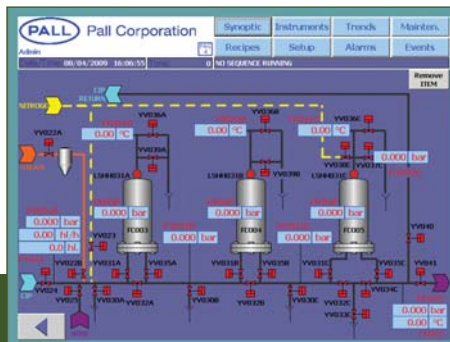
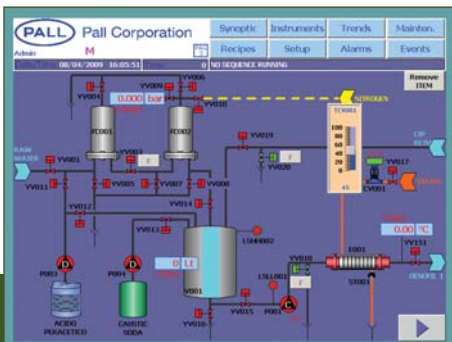
The flexible software can be easily adapted to interface with other bottling line equipment. When equipped with the CIP System, the Oenofil system can automatically control cleaning and sanitization of the downstream piping, filler and even the bottle washer enabling operation independent of the winery conditions with one unit for operator interfacing.

The user-friendly control panel displays the process flow diagram and main performance parameters with the capability to emphasize different parts of the process. The trends, history and program alarms are automatically recorded for up to 6 months providing documentation for Hazard Analysis and Critical Control Points (HACCP) and facilitating troubleshooting. Additionally, the history and integrity test results can be downloaded to a PC or connected to a printer for hardcopy records.

## Technical Support

Pall Corporation is dedicated to providing quality products and services to our customers. Our wine specialists will work with you to review your requirements and help you select a system appropriate to meet your specific needs.

In addition, our service engineers are available to provide scheduled maintenance inspections or emergency service.





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