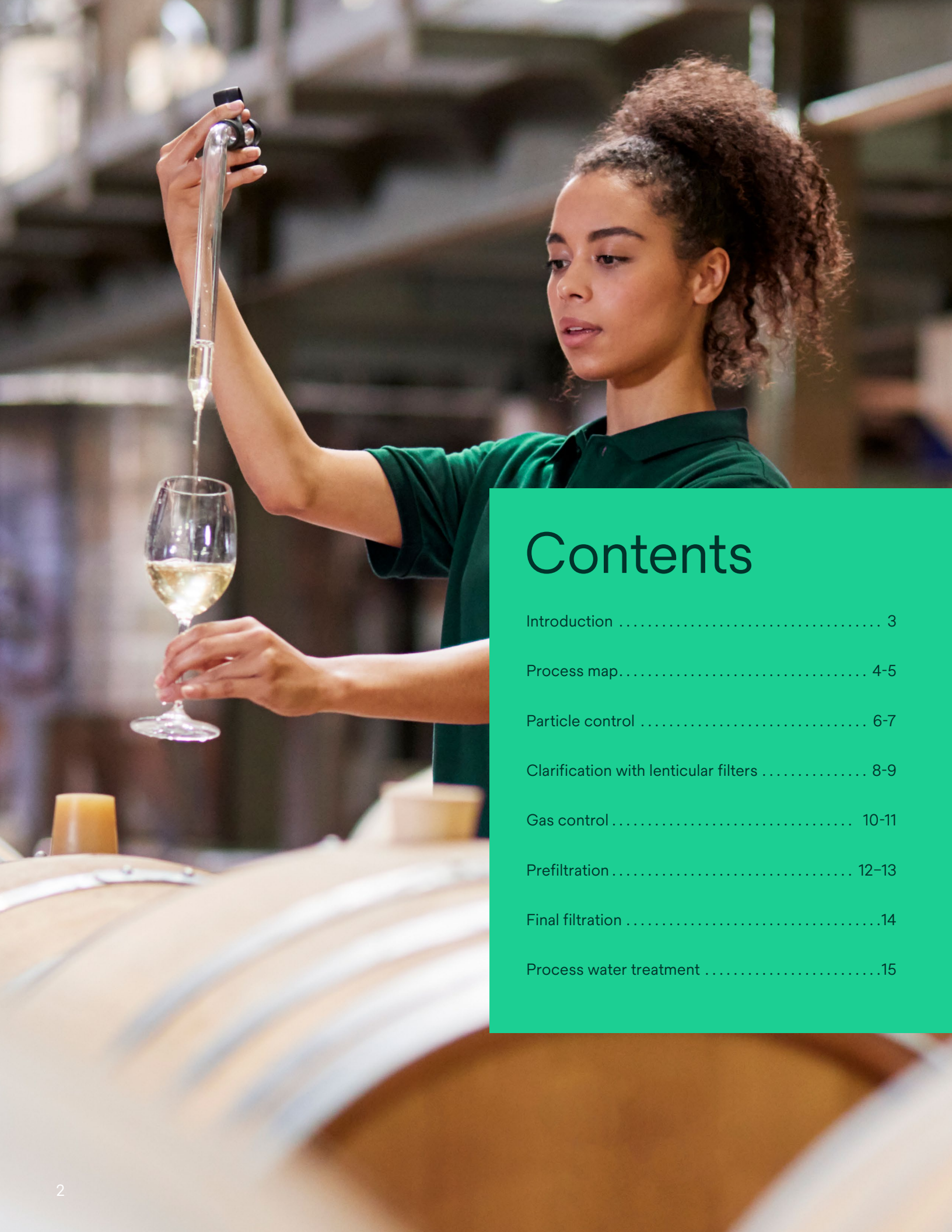




Optimize your winemaking process

Filtration and gas control for wineries



Contents

Introduction	3
Process map.....	4-5
Particle control	6-7
Clarification with lenticular filters	8-9
Gas control	10-11
Prefiltration	12-13
Final filtration	14
Process water treatment	15

Improve your process, improve your wine

Your wine isn't just a bottle of ingredients — it's a reflection of your craftsmanship, attention to detail and passion for winemaking. At Solventum we share your passion to create the best wine possible and partner with winemakers to create tailored solutions for clarification, prefiltration and final filtration. With cost-effective, efficient and reliable solutions to help ensure every bottle meets your high standards.



Performance

- Improve product quality and consistency — from clarity to stability
- Efficient, long-lasting products with high flow rates
- Superior contaminant holding capacity



Quality

- ISO 9001 certified
- Enhance taste & consistency
- Rigorous internal validation
- Tested against quality standards

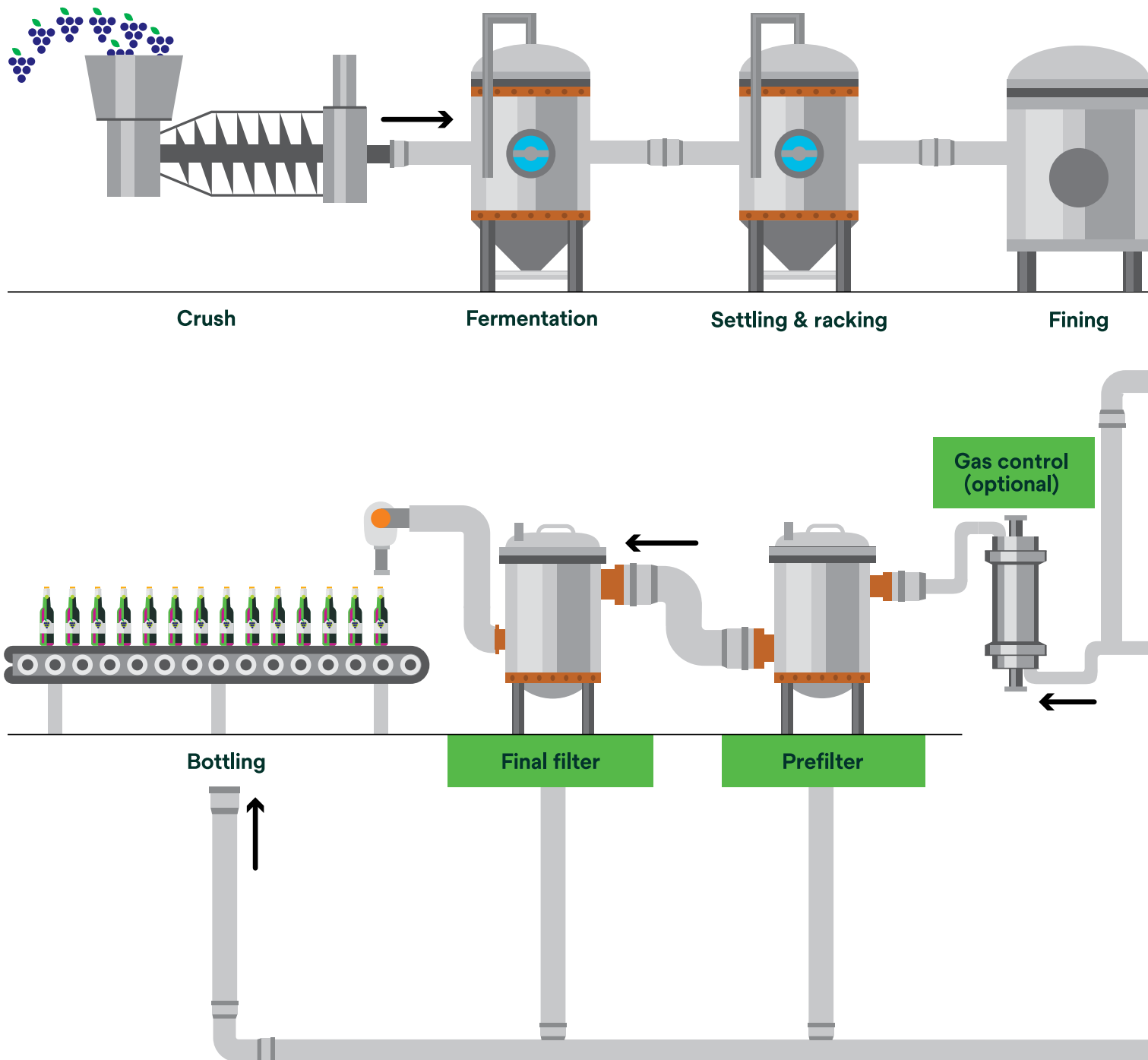


Convenience

- Easy to use, reducing labor & downtime
- Compatible with diverse production needs

Winemaking process

See how our filtration and gas control solution support each stage of your winemaking process



Clarification filter press solutions:

3M™ Zeta Plus™ H/MH Series Filters
3M™ High Flow Series Filters

Particle control solutions:

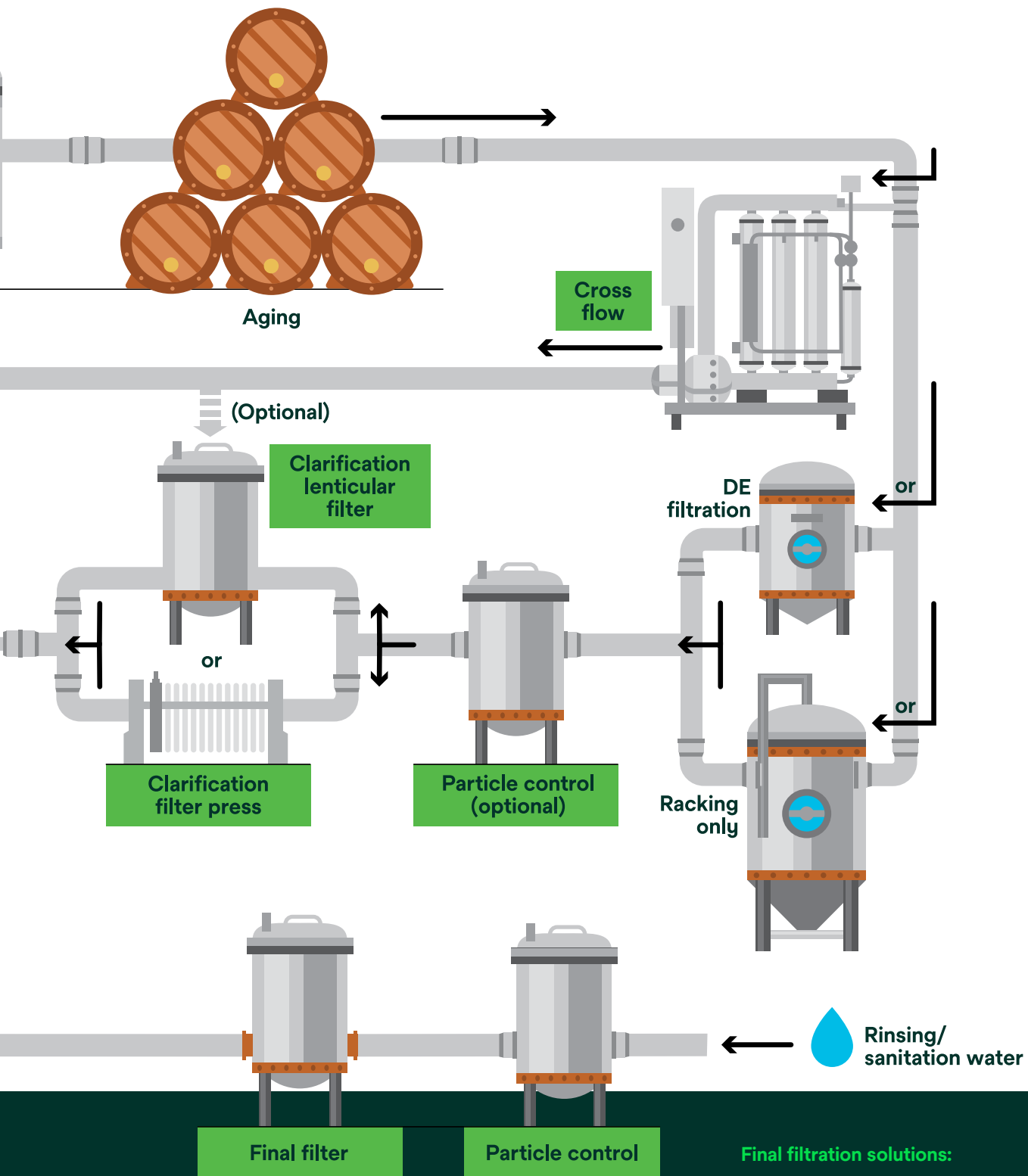
3M™ High Flow Series Filters
3M™ Micro-Klean™ RT Series Filters
3M™ Betapure™ NT-T Series Filters

Gas/alcohol control (opt) solutions:

3M™ Liqui-Cel™ Membrane Contactors

Prefiltration solutions:

3M™ Betafine™ XL Series Filters
3M™ High Flow Series Filters
3M™ LifeASSURE BBA Series Filters



Final filtration solutions:

3M™ LifeASSURE™ BBA Series Filters

3M™ LifeASSURE™ BA/BNA Series Filters

High flow filtration systems

Enjoy high flow capability in a compact design with solutions from Solventum. With fewer cartridges and smaller filter vessels than traditional systems, 3M™ High Flow Filtration Systems are ideal for particle control in water or wine, rough clarification, bulk wine prefiltration or with 3M™ Liqui-Cel™ Membrane Contactors.

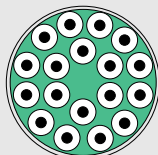
Comparison of potential options to obtain a system operating at a rate of 350 gpm (80m³/hr)

3M high flow filtration system



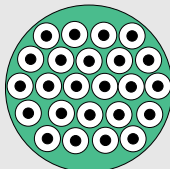
1 cartridge in a housing with a 8.6" (218 mm) diameter

2.5" (63.5 mm) pleated cartridges



18 cartridges in a housing with a 14" (356 mm) diameter

2.5" (63.5 mm) depth filters

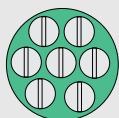


24 cartridges in a housing with a 16" (406 mm) diameter

90% fewer cartridges

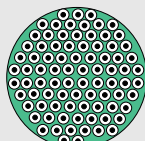
Comparison of potential options to obtain a system operating at a rate of 2000 gpm (454m³/hr)

3M high flow filtration system



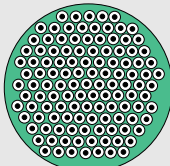
7 cartridges in a housing with a 24" (610 mm) diameter

2.5" (63.5 mm) pleated cartridges



85 cartridges in a housing with a 30" (762 mm) diameter

2.5" (63.5 mm) depth filters



120 cartridges in a housing with a 36" (914 mm) diameter

Up to
33-50% reduction in housing size





3M™ High Flow Filter Cartridge design features

Quick and easy filter replacement

The user-friendly filter design allows for faster replacements.

Polypropylene structure

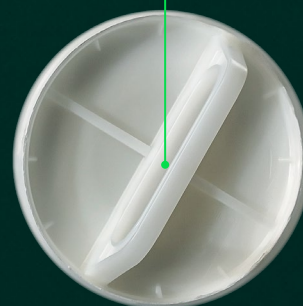
Provides broad compatibility with different types of fluids.

Radial pleat pattern

Maximizes the usable filter surface per cartridge.

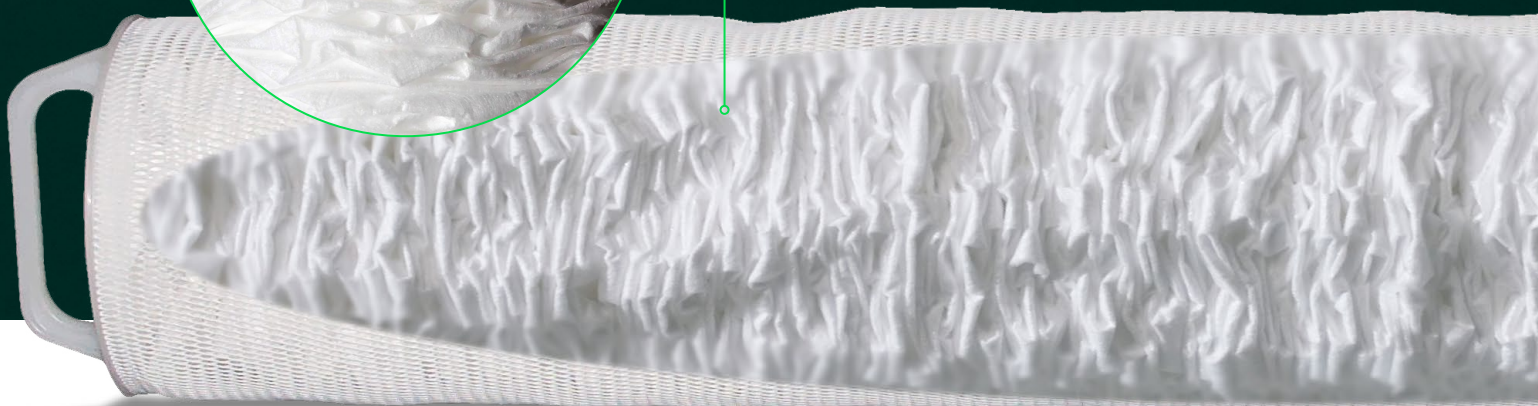
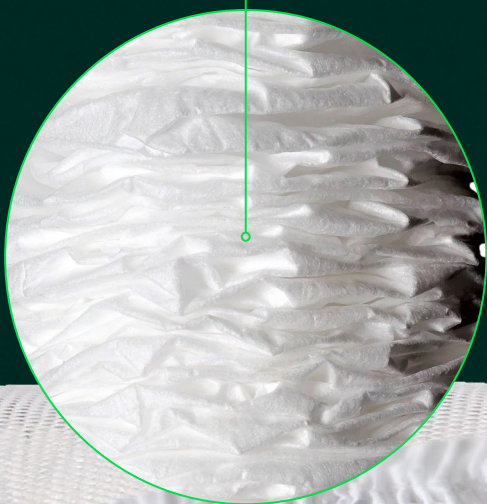
Easy to use

Ergonomic and handy design, fast and easy to insert and remove without the need for any equipment.



High flow rate

3-inch core permits up to 500 gpm (113 m³/hour) through a single 60-inch length cartridge. Bayonet attachment ensures easy fitting.



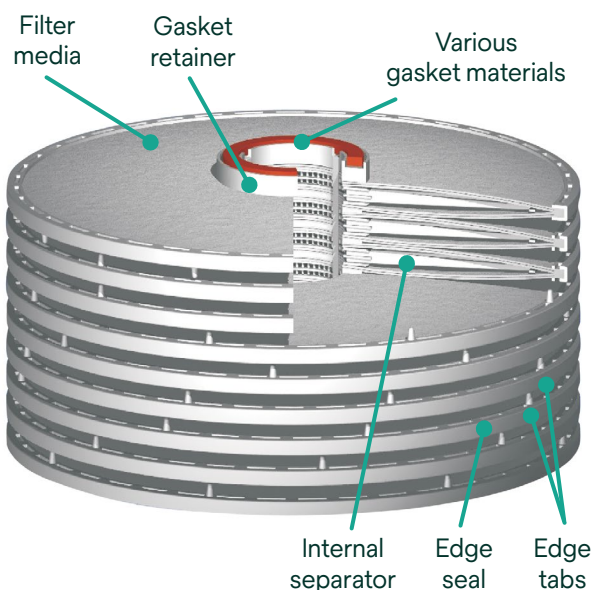
Reimagine wine filtration

Winemakers have used conventional plate and frame filter presses for years, despite their many recognized downsides. 3M™ Zeta Plus™ Series Filters were designed as a convenient and cost-effective alternative for wine filtration.

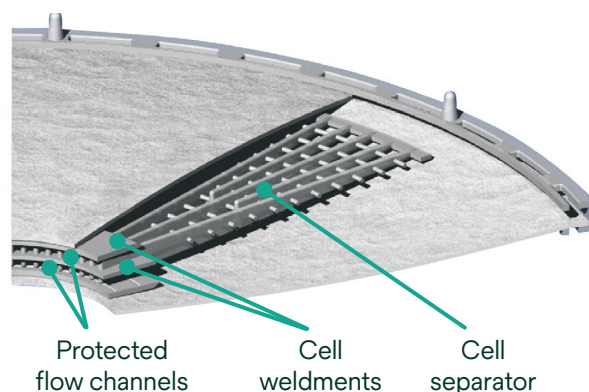
3M™ Zeta Plus™ H Series Filters

Charge-modified depth filters constructed with high-tensile strength media.

- High wet-tensile strength filter media withstands multiple steaming and hot water sanitization and regeneration cycles
- Extended filter life can provide high throughputs, fewer change-outs and reduced operating costs
- Provides efficient haze and particle reduction



Zeta Plus H series filter cartridge constructions



8" | 12" | 16" sizes

3M™ Zeta Plus™ MH Series Filters

Designed to provide optimal clarification and prefiltration in wine, Zeta Plus MH series filters are an advanced, dual-zone depth filter.

Their unique construction enhances the contaminant holding capacity of the filter by trapping larger particles, hazes and microorganisms in the upstream layer, and smaller ones in the downstream layer.

- Higher throughput, lower processing costs and smaller filter assemblies
- Dual zone depth filter enhances contaminant loading capacity
- Withstands the rigors of hot water, steam and chemicals for longer service life

Advantages of lenticular filters vs. filter presses

3M™ Zeta Plus™ Series Filters vs. filter press

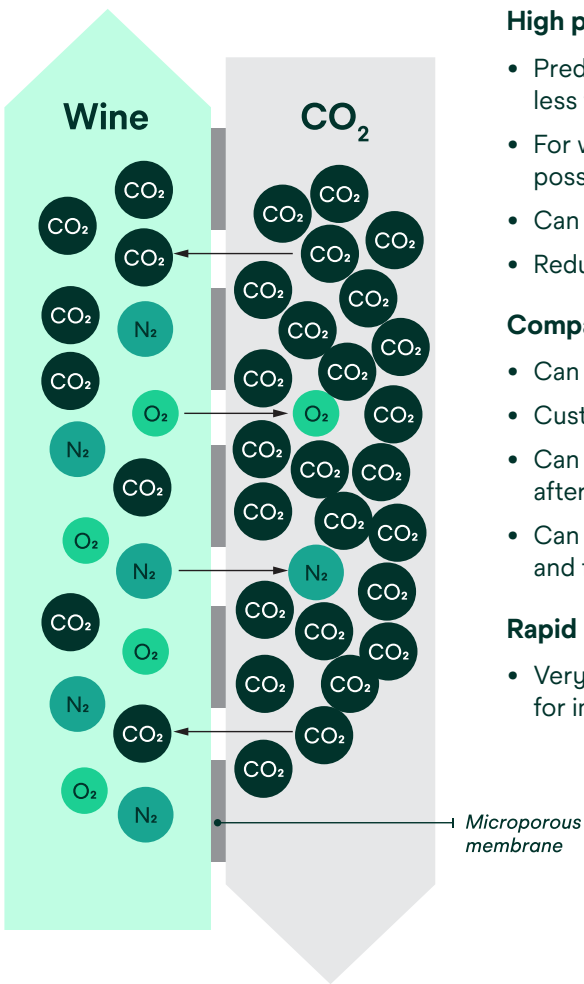
	Zeta Plus series filters (lenticular filters)	Filter press
Leakage	Zero leakage — no oxygen/bacteria pick up	As high as 1-2% of volume filtered
Labor	Filters can be changed in 15 minutes	It can take 2 to 4 hours to change a small filter press, reducing productivity
Change-outs	Cartridges are used completely — fewer change-outs are needed	Filters changed based on time in the press, not when filtration capacity has been achieved
Capital costs	Filter housings are typically 25-50% the capital cost of a stainless steel filter press	Filter presses are large, expensive pieces of equipment
Maintenance	Housing systems have 3 O-rings that are easy to clean and maintain	Presses typically have 4 O-rings per plate — heavy and cumbersome plates must be cleaned regularly
Disposal	Fewer change-outs results in reduced disposal costs	Filter sheets are discarded on a timed bases — additional disposal costs could be incurred
Floor space	Very small footprint frees up space for other operations	A 60cm ² press requires up to 100 sq. ft. of floor space
Energy consumption	Reduced energy/water operation time — reach sanitation temperatures in about 15 minutes	Takes 30-90 minutes to reach sanitation temperatures



3M™ Liqui-Cel™ Membrane Contactors

Get dissolved gas control in a versatile, compact solution. The taste and consistency of your wine depends on dissolved gas levels. Removing oxygen can extend shelf life, while adjusting carbon dioxide enhances flavor. Effective gas control systems can help ensure quality — from the first sip to the last drop.

Meet target product specifications with dissolved gas control



High performance and efficiency

- Predictable, precise gas control that can achieve oxygen concentrations of less than 0.1 mg/l
- For white wine, simultaneous oxygen removal and carbon dioxide addition possible in one step
- Can make the use of tanks or pumps redundant
- Reduce nitrogen consumption and help avoid supersaturation

Compact and versatile

- Can be installed in confined spaces
- Custom and modular system designs
- Can be used in several process phases: directly after clarification, tank to tank or before bottling
- Can potentially reduce impact on aroma, taste and flavor profiles

Rapid gas control

- Very low residence time for gas control allows for inline use of membrane contactor products



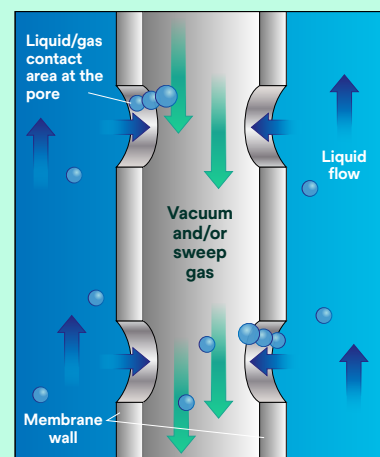
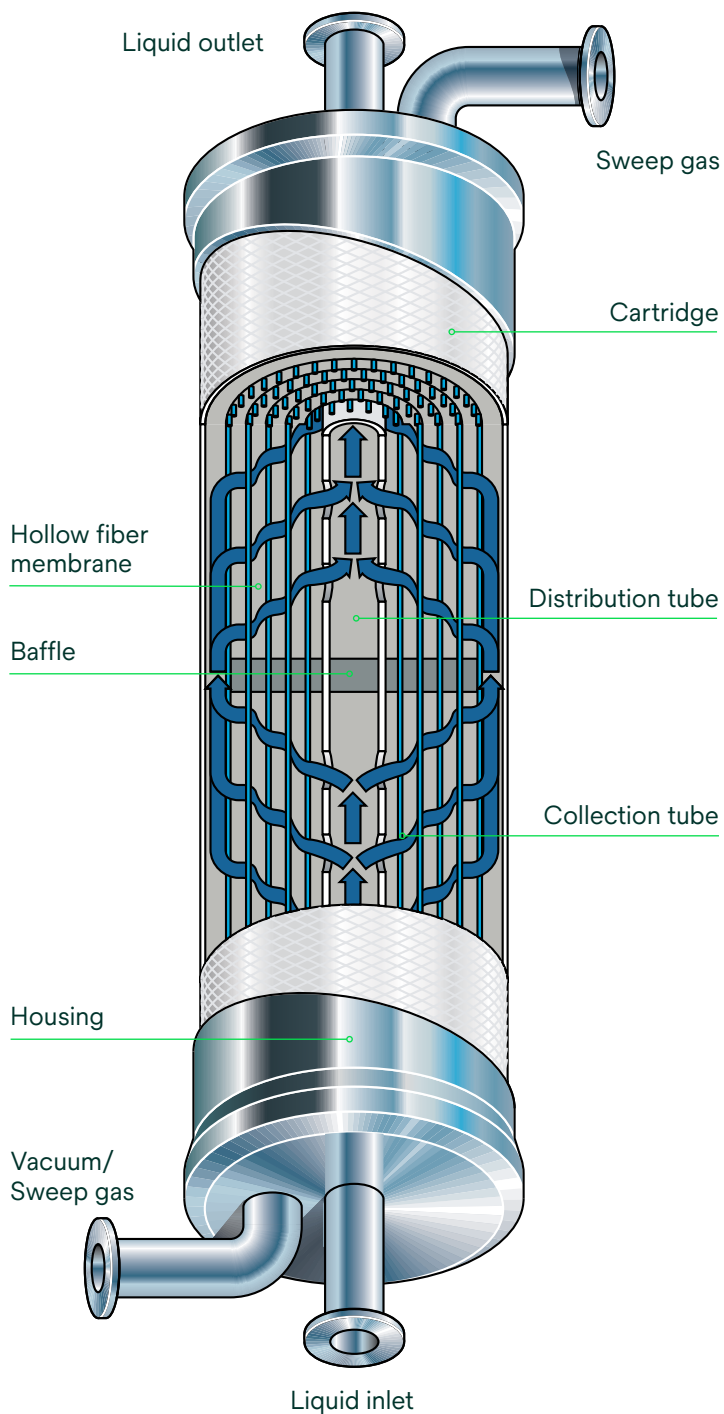
Addition or removal of carbon dioxide

Carbon dioxide affects the taste and sensation on the palate. In-line gas control with Liqui-Cel membrane contactors can help boost operational efficiency while maintaining or improving product quality and consistency.

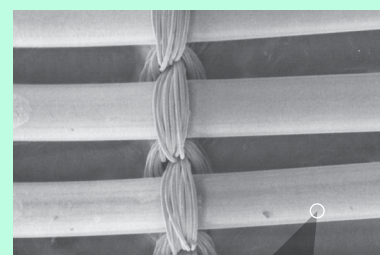


Deoxygenation in winemaking

Oxygen in wine can compromise its quality and accelerate deterioration. By limiting the amount of O₂ in wine, 3M™ Liqui-Cel™ Membrane Contactors can help protect shelf life and reduce impacts to aroma and taste.



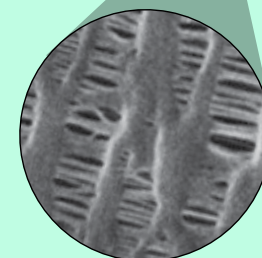
The hydrophobic membrane and small pore sizes keep liquid water from passing into the gas stream.



Hollow fiber membrane array



Hollow fiber



Hydrophobic membrane with pores approx. 0.03 μm

The power of advanced pleat technology

Many bottling applications use one or more prefilters and a final filter, arranged in series, to achieve maximum performance and cost reduction.



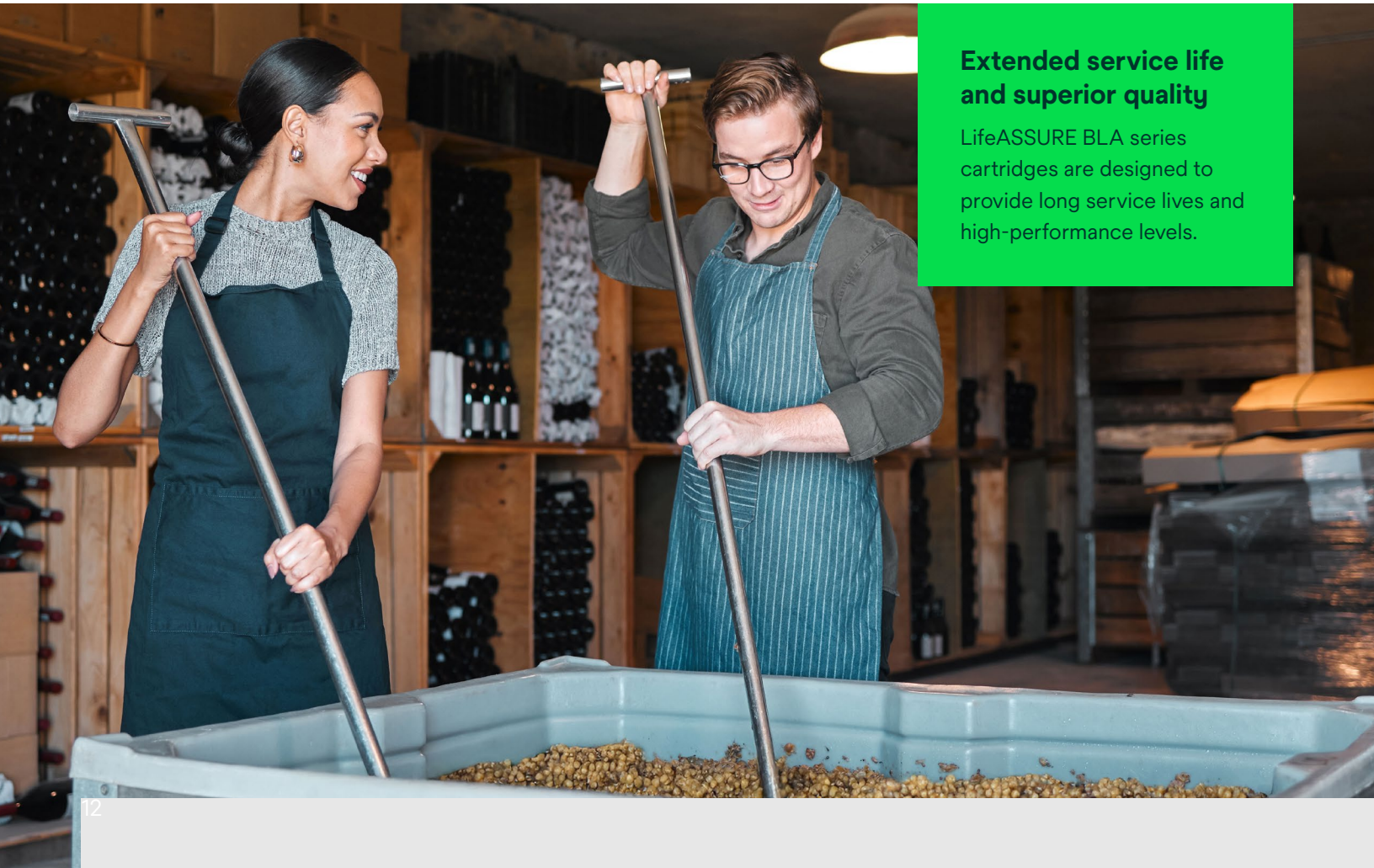
3M™ LifeASSURE™ BLA Series Filters

By combining a graded-density microporous membrane made of N66 nylon with Advanced Pleat Technology (APT), LifeASSURE BLA series filters guarantee protection for the final membrane filters and extend service life. The graded-density structure makes it possible to remove large particles and colloidal elements via the filter's external layer, which is more open, while smaller particles are retained in the filter's downstream qualifying layer.

This structure enables the contaminants to be distributed throughout the whole depth of the filter, thereby minimizing the pressure drop and maximizing the retention capacity.

Benefits include:

- Increases the final filter's service life
- Reduces the frequency of final filter changeouts, thereby considerably cutting filtration costs
- Helps reduce the microorganism content significantly

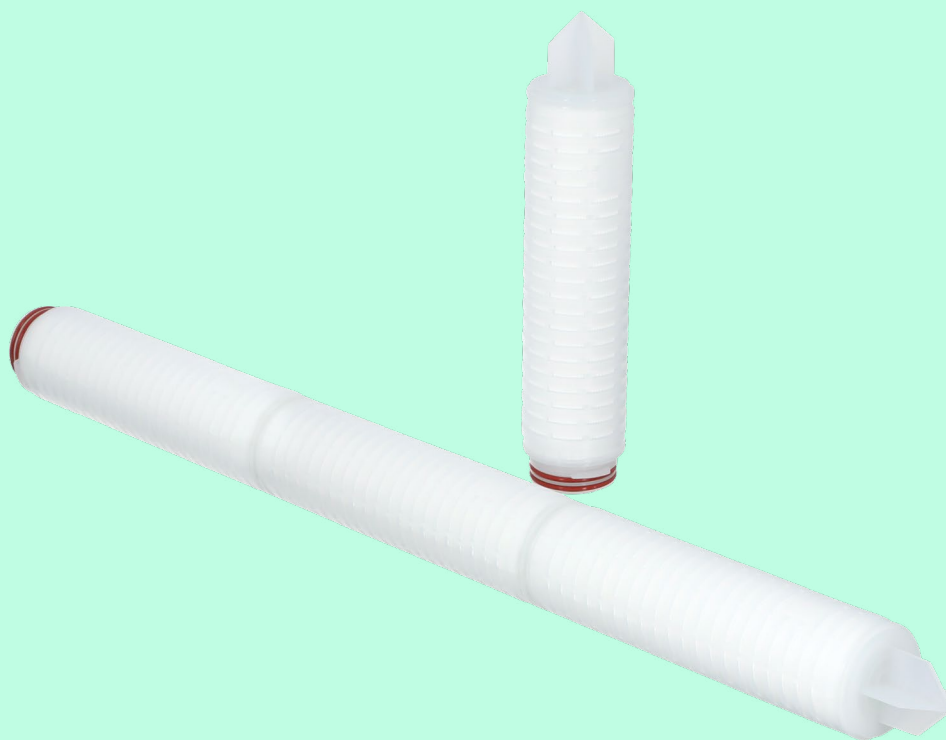


Extended service life and superior quality

LifeASSURE BLA series cartridges are designed to provide long service lives and high-performance levels.

3M™ LifeASSURE™ BBA Series Filters

This absolute-rated PES membrane filter provides improved filter service life and reliable microorganism control in wine and beverage applications. Designed for durable and long-lasting performance in a variety of food and beverage applications.

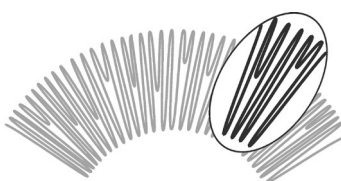


3M™ Betafine™ XL Series Filters

Polypropylene Betafine XL series filters utilize APT resulting in optimized filter media utilization and extended filter life.

Benefits include:

- Consistent and reproducible retention of contaminants and protection of downstream membranes
- Reduction in total filtration operating costs, resulting from extended service life and reduced number of replacements
- Polypropylene construction makes it compatible with a range of chemical and temperature, such as high temperature sanitization



Advanced pleat technology



Conventional pleating

Bottle your wine with confidence

Microporous membrane filtration is the best method to use to achieve microbiological stability without using chemicals or heat. This ensures that the organoleptic properties of the wine are preserved until opening the product, whether this occurs weeks, months or years after bottling.

Solventum provides a cost-effective solution to achieve microbiological stability. By combining the economy of a depth filter, 3M™ Zeta Plus™ H Series Filter, with a filter such as 3M™ LifeASSURE™ Series Filter, Solventum gives wine makers a complete sterile filtration package.

3M™ LifeASSURE™ BA, BNA and BBA Cartridges provide thermal resistance permitting continuous service under demanding process conditions.

LifeASSURE BA, BNA and BBA Series Filters

LifeASSURE BA (Nylon 6,6 membrane), BNA (PES, highly asymmetric membrane) and BBA (two layer asymmetric PES membrane and meltblown polypropylene microfiber media) series cartridges are available with retention grades of 0.65 µm in order to eliminate yeast, mold and bacteria, and 0.45 µm for removal of smaller microorganisms responsible for spoiling wine. These technologies offer a greater capacity for holding contaminants and less resistance to flow.

Benefits include:

- High surface area improves flow and filter life
- Spoilage organism retention provides reliable microbiological control
- Durable cartridge design withstands repeated hot water sanitation cycles
- Individually serialized and integrity tested



Extended service life

Resistant to steam and chemical cleaning, LifeASSURE BNA and BBA series filter cartridges offer a long service life. Service life is measured in terms of “volume filtered” and “number of operating days before exhaustion”. Filters which offer longer service lives not only reduce direct operational costs, but also reduce indirect filtration costs for tasks, such as filter change-out/installation, machine downtime and regeneration.



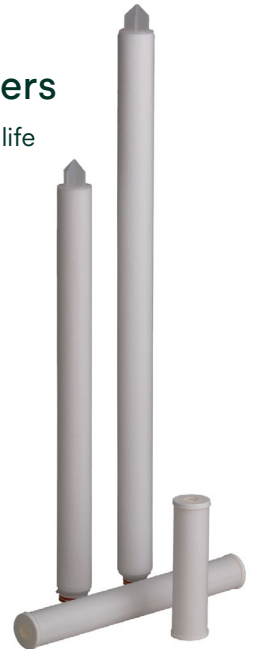
Hot water sanitation: filtered as precisely as your wine

Clean, contaminant-free water is essential for bottle washing, sanitation, and cooling to help safeguard wine processing systems and extend filter service life.

3M™ Betapure™ NT-T Series Depth Filters

Achieve consistent filtration efficiency and extended service life with Betapure NT-T series filter cartridges.

- Allows for broad chemical and temperature compatibility
- Long service life and consistent filtration efficiency
- Broad chemical and temperature compatibility
- Absolute rated performance provides consistent filtration quality



3M™ High Flow Series Filter System

Enjoy efficient filtration and a small equipment footprint with a compact and cost-effective 3M high flow series filter system.

- Up to 50% smaller than a competitively sized housing
- Delivers consistent quality throughout filter life span
- Neutral to the winemaking process, not affecting taste
- Easy to use with simplified cartridge installation and removal

Help ensure process stability and filter longevity

Hot water sanitation is used to sanitize plumbing lines and wine filters. Sanitation water filtration is essential to ensure downstream stability and avoid contamination between process cycles. Use of poorly filtered water to rinse or sanitize filters can result in early filter exhaustion.



Application engineering

The cornerstone for Solventum's philosophy is service to customers, not only in product quality and prompt delivery, but also in validation, application support, and the sharing of scientific information.

By using Solventum products, customers have access to Solventum Application Engineering support, a global team of market-focused scientists and engineers who excel in supporting collaborative efforts between customers and Solventum.

Our Application Engineers can work with you from start to finish to suggest the most effective and economical filters to achieve the clearest results.

Intended use: 3M™ High Flow, Betapure, LifeASSURE, Betafine, MicroKlean, DF Series and Zeta Plus filter products are intended for use in industrial filtration applications of aqueous fluids in accordance with the applicable product instructions and specifications. 3M high flow, Betapure, LifeASSURE, Betafine, MicroKlean, DF series and Zeta Plus filter products are also intended for use with non-aqueous fluids where materials of construction are compatible.

Certain 3M high flow, Betapure, LifeASSURE, Betafine, MicroKlean, DF series and Zeta Plus filter products are also intended for use in Food and Beverage (F&B) applications. For details related to the specific use conditions or limitations for food contact applications please contact your Solventum representative for more information.

3M™ Liqui-Cel™ Membrane Contactors are intended to remove dissolved gases and bubbles from liquids or to add gases to a liquid stream. 3M™ Liqui-Cel™ products are for use in industrial separation applications of industrial fluids only, in accordance with the applicable product instructions, specifications, and where materials of construction are compatible. Liqui-Cel membrane contactors may further be used in the production of water for various pharmaceutical products upstream of the final water sterilization step. Certain Liqui-Cel™ products are compliant for use in Food and Beverage applications. For specific details regarding use or limitations for food contact applications please refer to the Liqui-Cel™ product's data sheet or contact your Solventum representative for more information.

Since there are many factors that can affect a product's use, the customer and user remain responsible for determining whether the Solventum product is suitable and appropriate for the user's specific application, including user conducting an appropriate risk assessment and evaluating the Solventum product in user's application.

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3M Purification is now part of Solventum

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