

Filtration & Purification for Beverage Processing

A Refreshing Approach



Graver Technologies



High Purity Solutions for the Beverage Industry



Beer

Ensure consistent taste and quality in every batch with Graver filters. Our solutions remove yeast, DE, particulates, and bacteria, and provide high-purity water for brewing and bottling.

Recommended products:

- **Stratum[®], QMC[™], and PMC[™]** Series filters for particulate removal from makeup water or product streams, including DE trap and high-solids applications
- **TefTEC[™] V Series** pleated PTFE membrane filters for air and CO₂ filtration
- **ZTEC[™] WB or SLB** polyethersulfone membrane filters: 0.45 µm for bottling and 0.65 µm for keg filling



Wine & Spirits

Removing yeast and harmful bacteria is critical to preserving flavor and color. Graver pre and final filters ensure optimal beverage quality.

- **ZTEC WB Series** polyethersulfone membrane filters for final microbial removal
- **GFC[™] Series** pleated microfiberglass filters or **QMC Series** pleated polypropylene filters for particulate removal and membrane protection



Bottled Water

Graver filters remove particulates, capture microbes affecting appearance and shelf life, protect RO membranes, and trap carbon and resin fines.

- **CMBF[™], MBC[™], or Stratum[®]** polypropylene depth filters, or **PMA[™] and PMC** pleated polypropylene filters for supply water, carbon/resin fines removal, and pre-RO protection
- **TefTEC V Series** pleated PTFE membranes for tank vent filtration
- **ZTEC WB** polyethersulfone membrane filters for final filtration prior to ozonation
- **High Flow[™]** large geometry products for high-volume flows and compact systems
- **MetSorb[®]** adsorbent media for heavy metal removal, including arsenic and lead



Sugar and Sweeteners

Graver solutions deliver clarity, consistency, and taste across sugar and sweetener streams—from liquid sugar and syrups to cane and beet sugar—removing color, odor, taste compounds, and turbidity to meet standards.

- **Ecosorb[®]** integrated adsorption, ion exchange, and filtration in one dust-free product for efficient operation and high recovery in sweetener decolorization
- **CMBF, MBC, or Stratum** melt-blown polypropylene depth filters for pre-RO filtration to prevent membrane fouling



Plant Utilities

Steam, air, and water contacting product must be free of spoilage microorganisms. Graver filters provide this protection.

- **TPE Series** sintered titanium metal filters for steam filtration
- **TefTEC V Series** pleated PTFE membrane filters for tank vents
- **PME[™], PMC, or PMA Series** pleated polypropylene filters for makeup water filtration
- **WaterTEC[™]** polyethersulfone membrane filters for efficient submicron particle removal

A Refreshing Approach to Beverage Filtration Processing

Graver Technologies combines the broadest available range of pleated and depth prefilters with outstanding membrane products for final filtration. And with filters such as the QCR™ (Cyst reduction) and ZTEC-WB (Beverage-grade)—specifically designed for beverage applications, Graver assures customers of high quality filtration systems that meet the demands of the various beverage industry segments.

Graver's worldwide customer base includes producers of bottled water, wine, beer, soft drinks and spirits. We also supply filters for municipal water systems and military shipboard installations.

MELT BLOWN FILTERS

CMBF — Nominally rated melt blown polypropylene depth filters with the unique Crystal Core to prevent collapse even at elevated temperatures. The robust media construction provides dependable, economic filtration in pore sizes from 1 to 75 μm .

MBC — An economical, nominally rated disposable filter element constructed of 100% polypropylene media for chemical compatibility with a variety of process fluids. The molded core provides among the highest pressure ratings available in melt blown polypropylene products.

Stratum A — Melt blown depth filters deliver 99.9% efficiency from 0.3 to 100 microns for the most demanding applications. By utilizing multiple zones of ultra fine fibers and controlled thermal bonding, the Stratum A Series retains captured contaminant even at higher differential pressures.

Stratum C — Melt blown filters deliver exceptional performance from 0.5 to 100 microns in precise 90% removal efficiencies. With a multi-zoned construction, true clarifying filtration is achieved with no unloading of captured contaminant in applications requiring precise and repeatable depth filtration.

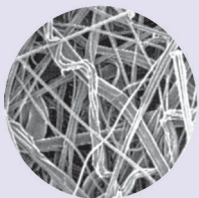
PLEATED FILTERS

PMC — Cost-effective, pleated polypropylene filters with nominal ratings from 0.25 to 50 μm and offers an economical alternative to non-pleated filters.

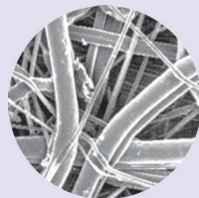
PMA — Economical, absolute efficiency filtration in pore sizes ranging from 0.2 to 100 μm . The all-polypropylene construction incorporates a non-migrating pleated media.

PME — Designed for cost driven applications, this all polypropylene filter delivers absolute efficiency in a broad range of particle sizes.

CelluTEC® — Pleated Cellulosic media that contains DE (Diatomaceous Earth) and polypropylene media to provide enhanced filtration. Graver CelluTEC cartridges are designed for high loading applications to replace large lenticular filters. The cellulosic filter media is pleated in two cartridge size options, 2.7" (Standard) and 6" High Flow cartridges to make testing and scale up easy to evaluate and implement. Ideal for fluid clarification and haze removal.



Inner final filtration layers of polypropylene media



Outer prefiltration layers of polypropylene media

QMC — Pleated filters manufactured with multiple layers of graded density, melt-blown polypropylene. Nominal ratings of 0.1 to 10 µm provide outstanding protection for final membrane filters.

QMA™ — 0.2 to 10 micron absolute rated, high-surface area pleated polypropylene filter cartridges provide low initial pressure drop, high dirt holding capacity and a long, consistent service life.

QXL™ — Formulated with multiple layers of microfiber media to provide absolute rated efficiency from 0.45 to 40 microns. This innovative pleated/depth design combines the high surface area of pleated filters with a graded pore structure to deliver superior performance and extended service life.

GFC™ — The borosilicate microfiberglass media with a natural positive charge exhibits exceptionally high dirt holding capacity. Available in nominal ratings from 0.2 to 30 µm with thermally bonded polypropylene components.

QCR™ — Filters specifically designed for the removal of Cryptosporidium oocyst and Giardia lamblia cysts. These absolute rated 1 micron filters have been tested and conforms to EPA LT2 guidelines for cyst removal.

LARGE GEOMETRY FILTERS

High Flow/High Flow RF — A large geometry pleated filter designed to handle high flows with fewer filter elements, resulting in much faster and easier filter change-outs as well as extending the time between filter change-outs.

MEMBRANE FILTERS

ZTEC — ZTEC membrane filters utilize TECpore™, a high-performance PES Membrane Made in the USA. With its advanced asymmetric structure, precisely optimized formulation, and superior filtration capabilities, ZTEC sets the benchmark for membrane filtration excellence. ZTEC WB is a single layer bioburden reduction filter while ZTEC SLWB is a serial layer design, utilizing a prefilter layer over the membrane. Tecpore is also in our QSL, a serialized product intended as an excellent prefilter to ZTEC WB.

TefTEC — Naturally hydrophobic expanded PTFE membrane filters designed for vent and gas applications. With over 8.5 square feet of filtration area, TefTEC filters provide outstanding flow rates. TefTEC filters are 100% flushed and integrity tested in a cleanroom environment.

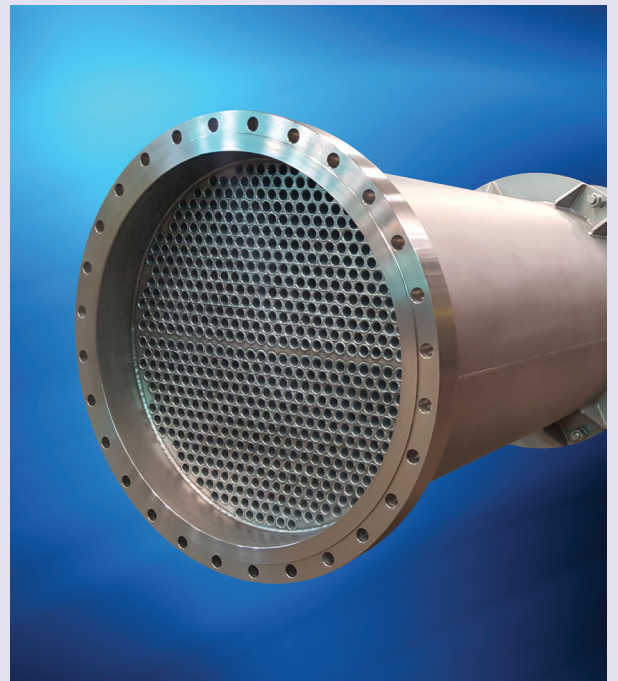
TefTEC V — Naturally hydrophobic expanded PTFE membrane filters designed for vent and gas applications. The TefTEC V provides outstanding air flow rates and demonstrates > 7LRV in an for aerosol bacteria challenge test.

ROBUST TECHNOLOGY FOR THE MOST DEMANDING APPLICATIONS

And for those more demanding extreme clarification challenges where suspended solids or extremes in chemistry limit your technology choices, we offer our Scepter crossflow microfiltration and ultrafiltration product. These rugged tubular stainless steel membranes have a titanium dioxide (TiO₂) membrane coating that is permanently sintered to the inside of the support tube to create a smooth, foulant-resistant membrane that allows processing dirty or hostile fluids over a broad range of chemical conditions, pressures and temperatures, often where no other membrane device can be used. Scepter systems are often specified as replacements where other technologies have failed, making it a clear cost effective option in many applications

TUBE CONSTRUCTION

Scepter tubes are welded together into all-stainless steel membrane modules which are generally incorporated into a custom engineered filtration system. The modules can be fabricated into diameters from 1" (25 mm) to 48 inches (1.2 meters), in lengths from 1' (0.6 meters) to 20' (6 meters) with a standard design pressure of 150 psig at 250° F (10.3 bar @ 121° C). To enhance chemical and thermal compatibility and to eliminate potential failure points, the modules are of all-welded construction with no gaskets, o-rings or polymeric components. The standard material of construction is 316L stainless steel, however, other alloys such as Hastalloy C are available to meet the needs of specific applications.



Superior Adsorbent Technologies for Superior Results

SUGAR DECOLORIZATION AND CLARIFICATION WITH ECOSORB

ECOSORB products are used extensively in food and beverage processing to remove a wide range of organic and inorganic contaminants for the purification and clarification of cane and beet sugar, soft drink syrups, high fructose corn syrup, wine and juice, distilled spirits and a variety of other products. When compared to dusty powdered activated carbon, ECOSORB products provide a clean, dust-free working environment while significantly increasing capacity, lowering production costs and reducing solid waste.

ECOSORB is a multi-functional purification media that combines adsorption, filtration and ion exchange in a single product. By combining the superior kinetics of fine particles with excellent flow characteristics, purification processes using ECOSORB run longer and deliver better quality effluents than standard treatment methods

HEAVY METAL REMOVAL WITH METSORB

MetSorb adsorbent technology utilizes a patented titanium compound specifically engineered to provide excellent arsenic, lead, and other heavy metal contaminant removal for the purification of drinking water, process water, and other critical purification applications. The increased surface area afforded by titanium coupled with advanced pore volume provides excellent kinetics of adsorption. The media is long-lasting and upon exhaustion, has consistently tested nonhazardous for disposal classification.

MetSorb HMRG is a highly effective granular adsorbent that removes arsenic III & V, and a wide variety of heavy metals, including lead, cadmium, copper, chromium+6, selenium, and zinc, in municipal applications.

MetSorb HMRP adsorbent is a free-flowing powder designed for incorporation into pressed or extruded carbon blocks where heavy metal reduction is desired. Use of HMRP affords high capacity, excellent kinetics and a low level of competing ion interference.



Discover the Clear Choice

Quality | Performance | Value

Graver Technologies has been designing and producing superior filtration, separation and purification solutions for more than 100 years. Our liquid process filters offer high quality, high performance and cost effective solutions for common industrial, high purity water and other critical process streams. Discover why Graver Technologies is the clear choice for beverage manufacturers around the globe.

INDUSTRY LEADING QUALITY

- Graver's quality system has been certified to meet ISO 9001:2008 standards.
- Final membrane filters are rinsed with ultrapure deionized water and integrity tested prior to release.
- Complete traceability is ensured by the engraving of lot numbers on all filters, plus pore size identification on membrane filters to assist customer installation accuracy.
- Membrane filters are flushed with ultrapure water, tested and packaged in an ISO Class 7 cleanroom.



SUPERIOR PRODUCTS & GLOBAL REACH

Whether your business is around the corner or around the world, Graver Technologies can support you with superior products and services. Our ion exchange, adsorbent, filtration, and membrane products deliver exceptional performance in some of the harshest process environments in North America, Europe, Asia, the Pacific Rim, South America, and Africa.

Graver Technologies, LLC is a member of The Marmon Group of companies, an international group with more than \$7 billion in annual sales. Graver Technologies is a fast-growing company with the technical resources and financial strength that make us the perfect partner for your business.



FOR MORE INFORMATION

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