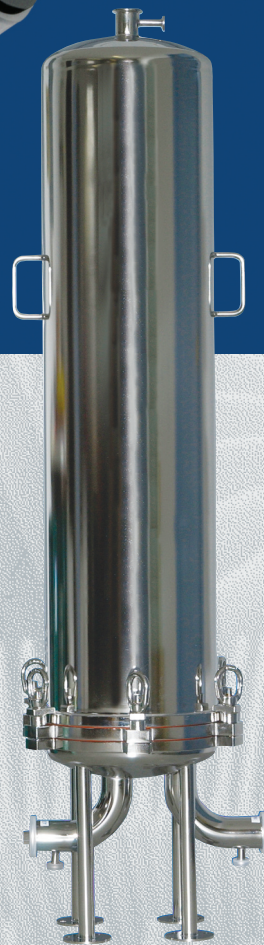


# Discover The Clear Choice

Quality | Performance | Value



- Clarity
- Stability
- Taste
- Consistency
- Efficiency
- Economy
- Reliability



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.



*Graver Technologies' state-of-the-art manufacturing technology produces consistent, high quality cartridge filters.*

## 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.

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GTX-298 10-13



Graver Technologies

# Global Leadership In Beverage Filtration



## A Totally Refreshing Approach to Beverage Filtration Media and Systems

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.



### Polypropylene Pleated Filters

**PMC™** – Cost-effective, pleated polypropylene filters with nominal ratings from 0.25 to 50 µm. The fixed pore structure prevents dirt unloading at elevated pressures, and the pleated element offers an economical alternative to non-pleated filters.

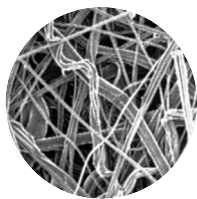
**PMA™** – Economical, absolute efficiency filtration in pore sizes ranging from 0.2 to 100 µm. The all-polypropylene construction incorporates a non-migrating pleated media.

**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.

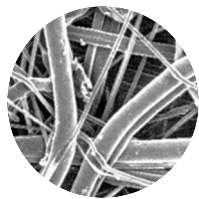
**QMA™** – 0.2 to 10 micron absolute rated, high-surface area pleated polypropylene filter cartridges provide low initial pressure drop, high dirt holding capacity and a long, consistent service life.

**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.

**High Flow™** – Large geometry pleated filters for use in systems with high flow requirements. The multi layer media provides removal of a wide range of particle sizes.

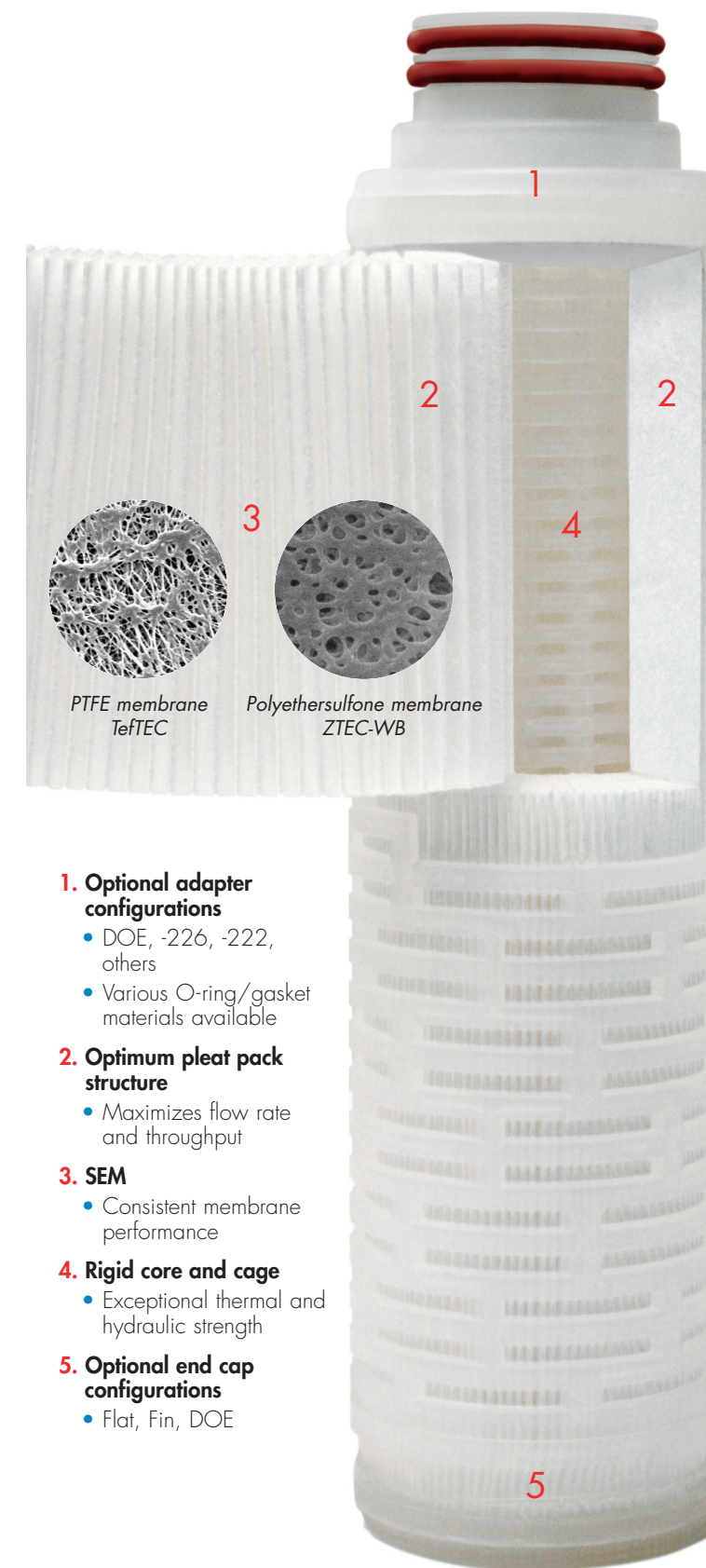


Inner final filtration layers of polypropylene media



Outer prefiltration layers of polypropylene media

## Our broad product offering facilitates filter system optimization for significant savings in capital and operating costs.



#### 1. Optional adapter configurations

- DOE, -226, -222, others

- Various O-ring/gasket materials available

#### 2. Optimum pleat pack structure

- Maximizes flow rate and throughput

#### 3. SEM

- Consistent membrane performance

#### 4. Rigid core and cage

- Exceptional thermal and hydraulic strength

#### 5. Optional end cap configurations

- Flat, Fin, DOE

### Additional Prefiltration Products

**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.

**CMBF/Stratum/MBC** – NSF61 Certified, nominal and absolute rated melt-blown polypropylene depth filters. Their robust media construction provides dependable, economic filtration in pore sizes from 0.5 to 75 µm.

**GSTACK™** – Lenticular depth filter modules are ideal for fluid clarification and haze removal. The cellulose based media can be ordered with either diatomaceous earth or perlite filter aides embedded in the media.

### Final Filtration Products

**QCR™** – Filters specifically designed for the removal of *Cryptosporidium* oocyst and *Giardia lamblia* cysts. These absolute rated, 1 µm filters have been tested to exceed ANSI/NSF Standard 53.

**ZTEC-WB™** – Membrane cartridge filters constructed of hydrophilic, asymmetric polyethersulfone membrane and polypropylene components. With extended surface area, these filters provide superior flow rates, improved dirt holding capacity and longer on-line service. Absolute rated and available in pore sizes of 0.2, 0.45, 0.65 and 1.2 µm, ZTEC-B filters have been validated for the removal of bacteria and spoilage organisms.

**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.

### Outstanding Support and Service

Whether you are retrofitting an existing installation or installing a new filtration system, Graver Technologies provides outstanding technical support and service. In most cases, Graver can easily cross-reference existing filters. And our breadth of superior products helps assure system optimization for improved performance.

For new installations, Graver can size your filtration requirements and recommend the ideal combination of prefilters and final filters. Our high dirt-holding prefilters and fast-flowing membranes can minimize your filter housing requirements and resulting system footprint.

At every step—from initial order processing, through filter installation and integrity testing—Graver specialists ensure your satisfaction.

## Liquid Process Filters for High Purity Solutions in the Beverage Industry



### Beer

To assure the highest quality and consistent taste in your unique brew, count on Graver filters for removal of yeast, DE, particulate and bacteria. Filtration solutions are also available to produce high purity water for the beer making process as well as for the bottling line.

#### Recommended products:

- Stratum, QMC, GFC or PMC series for particulate removal (makeup water or product) and DE trap. For higher solids removal, try QXL series
- TefTEC series pleated PTFE membrane filters for air and CO<sub>2</sub> filtration
- ZTEC-WB polyethersulfone membrane filters in 0.45 µm for bottling and 0.65 µm for keg filling
- GSTACK for removal of chill haze



### Bottled Water

Graver filters cost-effectively remove particulate, capture harmful microbes such as giardia and cryptosporidium cysts, protect reverse osmosis membranes, and trap carbon and resin fines.

#### Recommended products:

- QCR series pleated polypropylene filters for giardia and cryptosporidium removal
- CMBF, MBC or Stratum polypropylene depth filters or PMA, PMC pleated polypropylene filters for supply water, removal of carbon and resin fines, and for pre-RO
- TefTEC series pleated PTFE membrane for tank vents
- ZTEC-B, ZTEC-WB or ZTEC-G polyethersulfone membrane filters for final filtration prior to ozonation
- High Flow large geometry product for higher volume flows and where a smaller system is desired



### Soft Drinks

To produce great soft drinks, customers rely on Graver filter cartridges for purification of incoming water, tank vent filters, clarification of flavorings and sweeteners, and CO<sub>2</sub> filtration.

#### Recommended products:

- QCR series pleated polypropylene filters for giardia and cryptosporidium removal
- CMBF, MBC, or Stratum polypropylene depth filters or QMC, PMC pleated polypropylene filters for supply water and trap filtration
- TefTEC series pleated PTFE membrane filters for tank vents
- PMC series pleated polypropylene filters for syrup filtration



### Wine & Spirits

Removal of yeast and harmful bacterial is essential to maintain the distinct flavor and color of wine and spirits. Graver pre and final filters effectively remove these contaminants to assure the highest quality beverage.

#### Recommended products:

- 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
- GSTACK series lenticular modules for clarification



### Dairy

Utilities that come in contact with the product, including steam, air and water, must be free of microorganisms that can cause spoilage. Graver filters provide that protection.

#### Recommended products:

- TPM series sintered metal titanium filters for steam filtration
- TefTEC series pleated PTFE membrane for tank vents
- PMC or PMA series pleated polypropylene filters for make-up water