BROCHURE

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Ultrafit® Welded Liquid Filter Bags

The Clear Solution For Improving Filtration Performance™

- Fully Welded Construction
- Patented *Zero-Bypass*™ Collar
- High Efficiency Performance
- Enhanced Particle Loading
- Lower Filter Media Costs

Filtration Systems™

Division of Mechanical Mfg. Corporation

With the introduction of the *Ultrafit*® Welded Liquid Filter Bag, a new standard of excellence is achieved for high performance liquid filtration.

Experience

With more than 30 years of industry experience, ***Filtration Systems***™ has earned its reputation as a market leader, manufacturing filtration equipment of superior design and quality. Complimenting our full line of bag filter housings, multi-vessel units, portable systems and accessories used in solids/liquid separation, we now introduce the ***Ultrafit***® Welded Liquid Filter Bag, our brand of high-performance filter.

Ultrafit 100 and *Ultrafit* 500 Filter Bags

Constructed with our patented manufacturing technology, a new standard has been achieved for improved liquid filtration performance. Two unique products have been designed to provide users a total solution to challenging filtration applications.

Patented Design and Sealing Technology

Ultrafit Welded Liquid Filter Bags are manufactured with melt-blown polypropylene microfibers and total weld construction, eliminating bypass through needle stitching holes. Unlike our competition, there are no sewn seams anywhere in the product, including the attachment of the patented ***Zero-Bypass***™ Collar.

The Result: A highly efficient filter bag with an absolute seal.

Ultrafit Welded Liquid Filter Bags are also constructed using a second patented process of laminating multiple layers of graduated non-woven material, securing the polypropylene microfibers by ultrasonic means.

The Result: A filter bag with optimum particle holding capacity.

OUR FORMULA IS SIMPLE:
Performance = Efficiency + Loading

Efficiency

Efficiency is commonly referred to as a measure of a filter's effectiveness in removing particles of a specific size, usually expressed as a percentage. ***Ultrafit*** Welded Liquid Filter Bags achieve up to 97% efficiency at their stated micron ratings. Consistent particle removal occurs as a result of three fundamental elements of ***Filtration Systems*** unique design and manufacture:

1. Melt-Blown Polypropylene Microfibers

Ultrafit Welded Liquid Filters use polypropylene microfibers to achieve highly efficient and predictable results. Fiber diameters that are uniform in size, having consistent space between them, accurately control the porosity of the filter medium. This web structure, having high void volume, is capable of capturing large amounts of particles at the specific size required for the application.

2. No Sewn Seams – Fully Welded Construction

The filtration process is fully contained by using only welded seams throughout the filter bag, including the attachment of the collar to the bag, eliminating the potential for solids bypass. When a filter bag has stitching holes, resulting from sewn seams, the path of least resistance is through the holes and not the filter media. This is a weakness in design which compromises performance and yields inferior results. ***Ultrafit*** Welded Liquid Filter Bags have *no sewn seams anywhere,* eliminating solids bypass through needle holes.

Ultrafit *Welded Liquid Filter Bags have no sewn seams anywhere. Our patented ultrasonic welding process eliminates solids bypass.*

3. Patented Zero-Bypass™ Collar

The patented ***Zero-Bypass*** Collar used on the ***Ultrafit*** filter bag provides an absolute seal, ensuring filtration integrity and product consistency. Liquids cannot flow downstream unfiltered when ***Ultrafit*** filter bags are used in a ***Filtration Systems*** housing. When the lid of the vessel is closed, pressure is applied, compressing the unique vertical knife-edge design of the ***Ultrafit*** collar into *the most effective seal in the industry.*

The dirtier a filter bag gets, the more it resists flow. Liquid naturally seeks the path of least resistance; therefore, without a perfect seal, either from the bag, the vessel, or both, leakage of unfiltered liquid compromises results. Other filter bags may use metal rings that do not seal properly. Without the ***Filtration Systems Zero-Bypass*** Collar, even more expensive, "high efficiency" products will not perform as well.

*Compression of the **Ultrafit** patented **Zero-Bypass** Collar by the vessel lid eliminates bypass, keeping unfiltered liquid upstream where it belongs.*

Loading

Loading is defined as a filter's ability to capture the greatest amount of solids before blinding. The greater the particle loading capacity, the longer the useful service life of the filter.

Filtration Systems has applied new technology for the manufacture of filter bags with optimum particle loading capacity:

1. Laminating Multiple Layers of Non-Woven Material

Using the patented process of laminating multiple layers of non-woven material, polypropylene melt-blown microfibers are secured ultrasonically. Lamination at selected points along the length of the filter bag provides stability and gives the product superior mechanical strength.

2. Graded-Density Composite Layers

By design, ***Ultrafit*** Welded filters promote full-depth filtration throughout the entire bag. By staging filtering layers in sequence and graduating their porosity, larger solids are trapped in the upstream section while finer particles are captured downstream in the layers that follow. This unique feature allows the maximum filter surface area to be used. As a result, our filter bags are changed less frequently than other filtering products in similar applications, minimizing downtime and reducing costs.

Constructed using a patented process of laminating multiple layers of non-woven material, polypropylene melt-blown microfibers are secured ultrasonically. Graded-density composite layers promote full-depth filtration and enhanced solids loading.

Ease of Use

Ultrafit Welded filter bags allow higher flow rates and have higher efficiencies with lower initial pressure drops compared to cartridges. Capturing and accumulating solids inside the bag provides easier handling and filter disposal, saving time during change-out. In addition, the ***Zero-Bypass*** Collar has convenient molded handles that remain above the liquid level for easier removal. Liquid spills are reduced, product waste is minimized and productivity is increased.

Unlike other products, ***Ultrafit*** Welded Liquid Filter Bags are manufactured without metal parts. Bags that use metal rings often need shims or costly sealing devices. This means considerable time and effort goes into achieving an imperfect seal. In certain instances, liquid contact with metal components can produce adverse effects resulting from a chemical reaction. With no metal components, our filter bags can be disposed of by incineration, whenever fluid properties allow.

*Patented sealing technology, when used with **Filtration Systems** over-the-top housing design, will provide unsurpassed performance and results.*

Filter Housings – You Can't Filter What You Can't Seal

There have been many unsuccessful attempts to control filtration bypass through liquid filters. Housings having little or no bag sealing capability allow unfiltered liquid to bypass the ring of the bag. In high-efficiency applications, leakage of particulate is like throwing money downstream!

To further improve the performance of the ***Ultrafit*** Welded Liquid Filter Bag, place it in the best possible filter housing - one that eliminates leakage. When the lid of a ***Filtration Systems*** housing is closed it compresses the patented ***Zero-Bypass*** Collar and provides a leak-free seal.

The combination of our filter housing and bag is specifically designed to work as a total system, maximizing efficiency and results. Additionally, with our over-the-top housing design, clean up of the vessel is virtually eliminated, as all solids are removed with the filter bag during change-out.

The Bottom Line

Improved performance does not have to cost more. ***Ultrafit*** Welded Liquid Filter Bags deliver superior filtration performance at prices far below other disposable filters.

Product Features & Benefits

Ultrafit 100 and *Ultrafit* 500 Welded Liquid Filter Bags

Patented *Zero-Bypass*™ Collar – Patent No. 5,246,581
Prevents unfiltered liquid from bypassing seal.

Patented Non-Woven Lamination Process – Patent No. 5,770,077
Multiple layers of melt-blown material secured by ultrasonic means.

Totally Welded Ultrasonic Seams
Eliminates bypass of solids through needle holes found in sewn bags.

Controlled Fiber Diameter
Provides highly efficient and predictable results.

Graded-Density Composite Layers
Promotes full-depth filtration and enhanced solids loading.
(***Ultrafit*** **Welded 500 Filter Bag**)

100% FDA Compliant Polypropylene
Offers a broad range of chemical compatibility. All materials used in ***Ultrafit*** Welded Liquid Filter Bags conform to the requirements of the U.S. Food and Drug Administration.

Extractable Free Fibers, No Silicones, No Glues
Dimensionally stable material with no additives, adhesives or binding agents used, maintains product quality.

No Metal Components
Easier to use – no special sealing devices required. Fully combustible – reduces disposal costs.

Oleophilic Material (Oil Adsorbing)
Melt-blown polypropylene microfibers used in the ***Ultrafit*** Welded can adsorb many times its weight in oil. Extremely effective for removing trace oil from liquids. (***Ultrafit*** **Welded 500 Filter Bag**)

Product Identification
Micron rating and size permanently embossed assures correct replacement of the filter bag.

Lower Labor and Media Costs
Greater particle-holding capacity means fewer change outs, decreased costs, improved filtrate quality and reduced employee exposure to liquids.

Ultrafit 100 and 500 are available in the two most common industry sizes (P2 & P1), designed to fit filter vessels manufactured by **Filtration Systems**. In addition, ***Ultrafit*** Welded Liquid Filter Bags will retrofit most other competitor's housings. ***Ultrafit*** Welded Liquid Filter Bags must be used in an appropriate support basket.

Chemical Compatibility Table

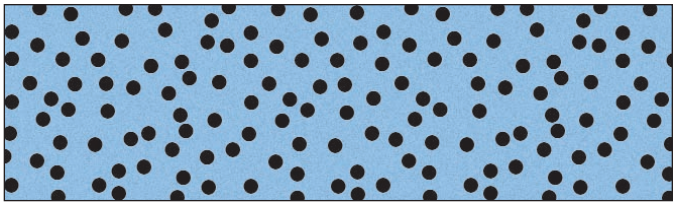
Ultrafit Welded Liquid Filter Bags have a wide range of chemical compatibility.

Chemical Classification	Typical Examples	Recommendation – *Ultrafit* 100 and *Ultrafit* 500
Bases (Alkalies)	Amines, Ammonium Hydroxide, Potassium Hydroxide, Sodium Hydroxide	Generally Compatible
Brines	Sodium Chloride, Calcium Chloride, Potassium Chloride	Generally Compatible
Inorganic Acids	Boric, Dilute Nitric, Hydrochloric, Phosphoric, Sulfuric	Generally Compatible
Organic Acids	Acetic, Citric, Formic	Generally Compatible
Organic Solvents	Alcohols, Amides, Cellosolves, Esters, Esthers, Glycols	Generally Compatible
	Benzene, Gasoline, Kerosene, Toluenes, Xylenes	Not Compatible
	Fats, Freon, Hexane, Oils, Octane, Methalyene Chloride, Perchloroethylene, Ketones	Limited Compatibility
Salt Solutions	Aluminum Chloride, Sodium Nitrate, Sodium Sulfate	Generally Compatible
Water	Ambient to 180°F	Generally Compatible

Important note on Chemical Compatibility:
The information presented in this table is for general guidance only. In most cases, the use of specific filtering material, such as polypropylene, can be safely recommended without special testing. However, since so many factors can affect the chemical resistance of a given product, the user under actual on-site operating conditions must determine filter bag compatibility. Factors such as degree of concentration of a substance in a fluid, temperature, and duration of filter bag exposure should be considered. If chemical compatibility is in doubt, please check with the manufacturer.

Ultrafit Welded 100 Liquid Filter Bags

Designed to provide highly efficient liquid filtration for applications requiring consistent levels of purity, the ***Ultrafit*** 100 filter bag is superior to either felt bags or cartridges. ***This product is ideally suited for batch or smaller applications or as a final filter where the range of particle size is narrower and more consistent.***



Conceptual illustration of solids suspended in liquid, enlarged to show detail.

The ***Ultrafit*** 100 filter bag is constructed of FDA compliant melt-blown polypropylene microfiber. With the use of absolute-rated material, full-depth filtration throughout the bag achieves efficiency levels of at least 90% at the micron ratings available. Two additional layers of non-woven spunbond are used to jacket the filtering membrane, providing support to the product and minimizing fiber migration downstream. The result is a superior product at an economical price.

Ultrafit 100 filters replace most other filter bags, yielding improved results, even in housings that have little or no bag sealing capability. When used in a ***Filtration Systems*** vessel, no shim or sealing device is necessary to achieve a perfect seal.

Efficiency data

Ultrafit 100 filter bags, using absolute-rated materials, achieve efficiency levels of at least 90% at the micron ratings available.

Product Number (Size #2 Filter)	Description	Efficiency
100-P002-P2	2 Micron	90%
100-P005-P2	5 Micron	92%
100-P010-P2	10 Micron	94%
100-P025-P2	25 Micron	93%
100-P050-P2	50 Micron	≥90% *

*Extrapolated. Efficiency testing is based on ASTM-F795 single-pass test using AC fine dust in water at 5-10gpm to 35psid.

Loading graph

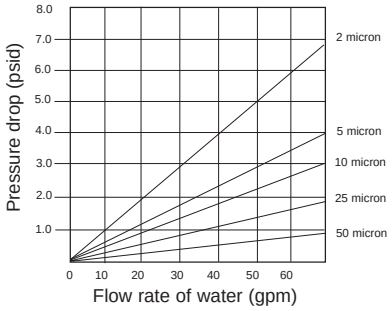
The ***Ultrafit*** 100 filter offers high loading capacity by promoting full-depth filtration throughout the bag.

Product Number (Size #2 Filter)	Description	Dirt Holding Capacity *(grams of AC Test Dust in water until 35psid at 12gpm)*
100-P002-P2	2 Micron	180
100-P005-P2	5 Micron	190
100-P010-P2	10 Micron	207
100-P025-P2	25 Micron	215
100-P050-P2	50 Micron	≥207 *

*Testing recommended.

Pressure drop data

The ***Ultrafit*** 100 filter bag pressure drop data graph shows the pressure drop versus flow rate across the filter.



This graph does not include the pressure drop of a filter vessel, which should be included when sizing these products for your application.

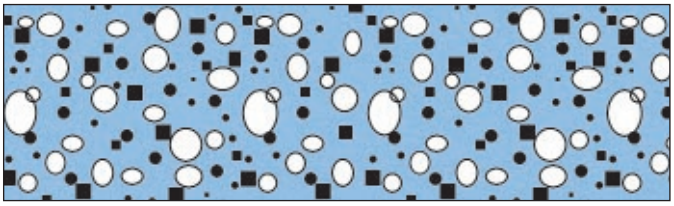
Product Specifications – *Ultrafit* 100 Filter Bags

Micron Rating Availability:	2, 5, 10, 25, 50
Dimensions – Size #2 Bag: Size #1 Bag:	7” x 33” 7” x 16”
Surface Area – Size #2 Bag: Size #1 Bag:	approx. 15 square feet approx. 7.5 square feet
Maximum Flow Rate* (water):	50gpm – Size #2 30gpm – Size#1
Operating Temperature:	Maximum Continuous: 180°F
Differential Pressure:	1–5psig Initial Recommended Change-Out: Initial Pressure plus 20psig
Package:	Dispenser Box – 20 per Case Individually Wrapped for Cleanliness
Materials of Construction:	100% FDA Compliant Material
Zero-Bypass™ Collar:	Polypropylene, Dimensions: 7.125” O.D.
Filter Material:	Polypropylene Microfiber
Support Jacket:	Polypropylene, Non-Woven Spunbond

*Flow rate and Pressure drop information is based on water at ambient temperature.

Ultrafit Welded 500 Liquid Filter Bags

A new generation of manufacturing technology has been developed using melt-blown microfiber layers, enabling us to produce a superior filtering product. ***For applications demanding both high loading and efficiency, the* Ultrafit *500 filter bag has the unique ability to effectively filter liquids where particles vary in both size and distribution.***



Conceptual illustration of solids suspended in liquid, enlarged to show detail.

The ***Ultrafit*** 500 filter bag consists of a high-loft, low-density layer of melt-blown polypropylene, serving as a primary upstream filter. Separately jacketed, this layer collects the larger particles, preventing them from prematurely blinding the media below. Downstream of the pre-filter, successive layers of graded-density microfiber capture the finer particles as they randomly occur within the solution. As the fluid progression continues, redundant final membrane layers assure filtration efficiency levels of at least 96% at the micron ratings available.

Staging multiple filtering layers in sequence, while graduating their porosity, enhances particle accumulation by collecting solids throughout the entire depth of the bag. The use of redundant layers dramatically improves filtering performance.

Efficiency data

Ultrafit 500 filter bags, using absolute-rated materials, achieve efficiency levels of at least 96% at the micron ratings available.

Product Number (Size #2 Filter)	Description	Efficiency
500-P002-P2	2 Micron	96%
500-P005-P2	5 Micron	97%
500-P010-P2	10 Micron	97%
500-P025-P2	25 Micron	96%
500-P050-P2	50 Micron	≥96% *

*Extrapolated. Efficiency testing is based on ASTM-F795 single-pass test using AC fine dust in water at 5-10gpm to 35psid.

Loading graph

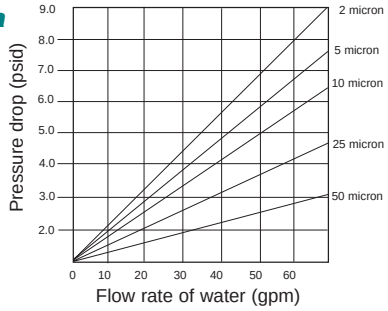
The ***Ultrafit*** 500 filter offers optimum loading capacity. Enhanced particle accumulation, as a result of the multiple layer construction, dramatically increases the service life of the filter bag with minimal change in differential pressure.

Product Number (Size #2 Filter)	Description	Dirt Holding Capacity *(grams of AC Test Dust in water until 35psid at 12gpm)*
500-P002-P2	2 Micron	249
500-P005-P2	5 Micron	297
500-P010-P2	10 Micron	370
500-P025-P2	25 Micron	436
500-P050-P2	50 Micron	≥370 *

*Testing recommended.

Pressure drop data

The ***Ultrafit*** 500 filter bag pressure drop data graph shows the pressure drop versus flow rate across the filter.



This graph does not include the pressure drop of a filter vessel, which should be included when sizing these products for your application.

Product Specifications – *Ultrafit* 500 Filter Bags

Micron Rating Availability:	2, 5, 10, 25, 50
Dimensions – Size #2 Bag:	7” x 33”
Size #1 Bag:	7” x 16”
Surface Area – Size #2 Bag:	approx. 26 square feet
Size #1 Bag:	approx. 13 square feet
Maximum Flow Rate* (water):	40gpm – Size #2 25gpm – Size#1
Operating Temperature:	Maximum Continuous: 180°F
Differential Pressure:	2-6psig Initial Recommended Change-Out: Initial Pressure plus 24psig
Package:	Dispenser Box – 12 per Case Individually Wrapped for Cleanliness
Materials of Construction:	100% FDA Compliant Material
Zero-Bypass™ Collar:	Polypropylene, Dimensions: 7.125” O.D.
Filter Material:	Polypropylene, Graded-Density Microfiber
Support Jacket:	Polypropylene, Non-Woven Spunbond

*Flow rate and Pressure drop information is based on water at ambient temperature.

Industry Applications

***Ultrafit* Welded Liquid Filter Bags are designed for general and varied industry applications.**

- **Beverage**
  water, juices, liquor
- **Biotechnology**
  extracts, agrochemical, nutritional supplements
- **Chemical Processing**
  paint and varnish, lacquer, printing ink, adhesives, process water, fats and oils, bulk chemicals, plating solutions, amines, plastisols, acids and bases, polymers
- **Cleaning Machines**
  ultrasonic, industrial, mechanical and aqueous parts washers
- **Cosmetic Processing**
  lotions, solutions, emulsions
- **Electronic Components**
  electroplating, semiconductors, ultrapure water
- **Food Processing**
  fats and oils, vegetable oils, confectionery products, sugars, process water
- **Fermentation**
  beer, wine, liquor
- **Metal Processing**
  cooling, cutting fluids, industrial coatings, lubricants
- **Nuclear Installations**
  waste water
- **Paper Production**
  paper coating, process water, photographic
- **Petrochemicals**
  hydraulic fluids, oil well applications, amine solutions, lubricants, fuels
- **Pharmaceutical Processing**
  laboratory chemicals, plant extracts, pre-filtration for reverse osmosis or membrane filtration
- **Photo and Audio/Visual**
  photographic products, magnetic media coatings
- **Pre-Filtration**
  reverse osmosis, membrane filtration, carbon treatment, submicronic
- **Surface Technology**
  industrial coatings, ultrasonic cleaning, automotive finishing
- **Water Treatment and Purification**
  process water, potable water treatment and purification, industrial, cooling tower, chiller systems

Selecting *Ultrafit* Welded Filter Bags for Your Application

When choosing ***Ultrafit*** filters for your application, consider the following parameters: micron rating requirement, efficiency level, particle loading (size and distribution), flow rate, pressure drop, thermal or chemical compatibility and cost. Any combination of these factors can affect optimum performance and maximum value.

Product Specifications

With over 30 years of industry expertise and proven performance, **Filtration Systems** offers quality products at responsible prices. We constantly strive to improve our products through continuous research and development; therefore, we reserve the right to change specifications without notice.

Intellectual Property

This company is committed to protecting its patents, trademarks, and proprietary rights from those who would wrongfully use them. Products are protected by Patents 4,921,606 • 5,246,581 • 5,306,108 and 5,770,077. Other patents are pending. ***Zero-Bypass***™ and ***Filtration Systems***™ are trademarks of Mechanical Mfg. Corporation. ***Accufit***® and ***Ultrafit***® are registered trademarks of **Filtration Systems**, division of Mechanical Mfg. Corporation.

Warranty

Filtration Systems warrants our products to be free from defects in workmanship for a period of one year from the date of purchase, when used in accordance with our specific guidelines. Our only obligation and a customer's remedy, subject to our inspection, shall be to replace the product or refund the purchase price.

Limitation of Liability

Filtration Systems shall not be held responsible or liable for any loss or damage resulting from the sale, use or misuse, direct or indirect, incidental, special or consequential, associated with product merchantability and fitness for a specific purpose.

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