

Filter Media Selection Guide

High Performance
Liquid Filter Media



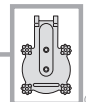
Accufit[®]
Welded Filter Bags

Ultrafit[®]
Welded Filter Bags

APX[®]
Cartridge Elements

Filtration Systems

Division of Mechanical Mfg. Corporation



FILTRATION SYSTEMS LIQUID FILTER MEDIA



We are committed to satisfying our customer's diverse needs with personal service and prompt delivery.



Our vessels and filter media are specifically designed to work together as a system, maximizing efficiency.



Companies that invest in the refinement of their liquid filtration processes are rewarded with higher quality products, increased productivity and reduced labor costs.



We have extensive experience in the areas of Process and Industrial Filtration, Microfiltration and Pre-filtration.



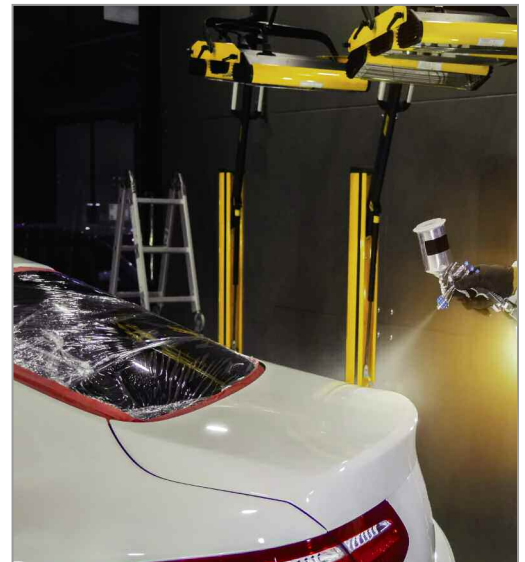
The cornerstone of *Filtration Systems* philosophy is Customer Satisfaction.

Our commitment extends to product quality, prompt delivery, and system recommendation.

We serve the following industries and their distributors:

- Chemical & Petrochemical Processing
- Pharmaceutical, Cosmetic & Biotechnology Processing
- Water Treatment, Purification & Reclamation
- Food, Beverage & Fermentation
- Electronic Components, Photo & Audio Visual
- Surface Technology, Cleaning Machines, Nuclear
- Critical Liquid Process Applications

With over 50 years of industry experience, *Filtration Systems* has a reputation as a market leader, manufacturing industrial liquid filter products of superior quality and design.



Filtration Systems vessels and filter media are widely used throughout the world for liquid clarification and high-purity filtering applications.



FILTRATION SYSTEMS LIQUID FILTER MEDIA FEATURES

Fully Welded Construction

Ultrasonically welded seams prevent solids, larger than the micron rating of the media, from bypassing the Filter Bag. Conventional Filter Bags are sewn, allowing particles to bypass through the needle holes of seams.

TruSeam™ Technology

TruSeam™ Technology provides a fully finished longitudinal seam with no rough edges.

Zero-Bypass® Bag Collar

The Zero-Bypass Collar provides an optimum compression seal, when used in a Filtration Systems Filter Vessel. When the Filter Bag is under elevated pressure, the flanged Bag Collar prevents bypass of unfiltered liquid.

PurSeal® Flanged Bag Collar

The PurSeal® flange provides a hydrostatic compression seal when used on our Over-The-Top® design housings, eliminating bypass of unfiltered liquid downstream.

Elevated Filter Bag Handles

A dual handle lift-out, located above the liquid level, eliminates contact with dirt and unfiltered materials, and allows quick Filter Bag removal for replacement. Liquid spills are reduced, product waste is minimized and productivity is increased.

Rounded Bottom

The round bottom of the Filter Bag is designed to conform to the shape of the Support Basket. Additional length ensures that the bag will remain fully supported by the Basket.

Filter Bag Sizes

P1 Size: 7" dia. x 16" long

P2 Size: 7" dia. x 33" long

P3 Size: 4" dia. x 9" long

P4 Size: 4" dia. x 14" long

P5 Size: 4" dia. x 24" long

Cartridge Element Sizes

APX-728: 7" dia. x 28" long

APX-412: 4" dia. x 12" long

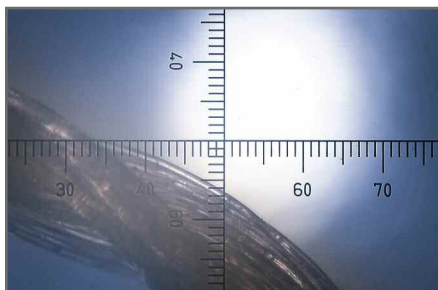
APX-422: 4" dia. x 22" long



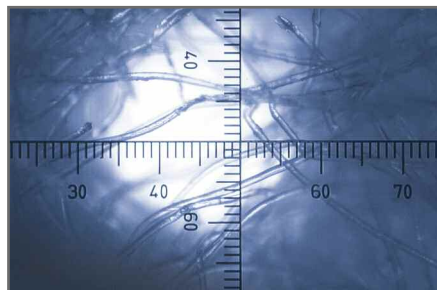
Zero-Bypass® Bag Collar



PurSeal® Flanged Bag Collar



Microscopic image of thread used in conventional sewn filter bags.
Thread diameter: 400 Micron



Microscopic image of stitching hole resulting from the thread used in a sewn seam.
Hole size: 600 Micron

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. Filtration Systems Liquid Filter Bags have no sewn seams anywhere, eliminating solids bypass.

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Terminology & Features

Test/Process Equipment & Services

Disc Filter Housing Systems

Filter Media Product Specifications



Accufit® Welded SuperBond®

Multi-layer, laminated filter bags provide superior particle removal efficiencies for a broad range of industrial filtration applications...

ELC® – Engineered Laminated Composite is clean, uniform and stable. Designed for consistent and predictable results. Available in 100% FDA compliant Polypropylene or Nylon.

FEATURES

- Accufit® Welded SuperBond® is designed as the superior alternative to commodity-grade, felt filter bags.
- Designed to provide predictable performance results with 90% efficiency ratings.
- Ultrasonically Welded, Composite Layer Design for increased surface area and precise particle retention.
- No stitching holes like those found in other, sewn liquid filters.
- Longer lasting with significantly improved efficiencies over and above felt filter bags.
- IP Series - Integrated Polymeric Support® structural layer for enhanced strength and support. Prevents fiber migration downstream.
- Zero-Bypass® Compression Collar prevents bypass and sealing issues.

SPECIFICATIONS

- Manufactured using Multi-Layer, Thermally Bonded Continuous Filament Depth Media in **Polypropylene or Nylon**.
- 100% FDA compliant materials, according to CFR Title 21. Silicone free.
- IP - Integrated Polymeric Support® support layer; non fiber-shedding.
- Suggested maximum differential pressure: 35psi / 2.4 bar
- Maximum operating temperature: Polypropylene 180°F / 82°C, Nylon 340°F / 171°C
- Suggested maximum flow rate: 90gpm (water, P2 size)
- Available in standard industry sizes: P1 (7"dia x 16"L), P2 (7"dia x 32"L) P3 (4"dia x 9"L), P4 (4"dia x 14"L), P5 (4"dia x 24"L)
- Available micron ratings: 1, 5, 10, 25, 50, 100

MODEL NUMBER CODING

SB-Pxxx-P2-IP (xxx = micron rating) 100% FDA POLYPROPYLENE COMPONENTS

SB-Nxxx-P2-IP (xxx = micron rating) 100% FDA NYLON (N6) COMPONENTS



Accufit® Welded SuperBond®
Liquid Filter Bags

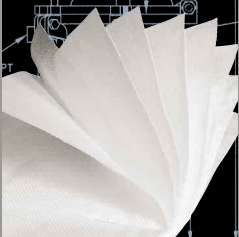
ACCUFIT® WELDED IP SERIES

- Supported Polypropylene Felt with exterior glazed finish minimizes fiber migration downstream
- Nominally rated solids retention
- Single-use, disposable filter bag
- IP Series - Integrated Polymeric Support® structural layer for enhanced strength and support. Prevents fiber migration downstream.
- Media is up to 40% thicker than most competitors' felt bags
- Available micron ratings: 1, 5, 10, 25, 50, 100, 200
- 100% Polypropylene, including Zero-Bypass Collar

Media: Supported Polypropylene Felt **IP Layer:** Polypropylene Monofilament
Downstream Support Jacket: Polypropylene, non-woven spunbond



ACCUFIT® WELDED EXPANDED MEDIA LIQUID FILTER BAGS



Accufit® Welded Expanded Media

A unique filter product, designed for demanding, high purity liquid filtration applications has been developed offering superb flow, robust solids loading, minimal differential pressure, and precise micron retention—all essential requirements for maximizing results...

Specifically manufactured for high solids loading and strength; excellent for high purity chemical and water, pharmaceutical, food, edible or high purity synthetic oils, bio-fuels and cosmetic use; superb quality filtering incorporates convenience, cleanliness and productivity. These filters are available in quad, six, eight, ten-wall, or more laminated plies, are non-fiber shedding and can handle elevated temperatures (in 100% Nylon or Polypropylene). Graded-density and/or redundant layers of FDA compliant monofilament are ultrasonically laminated and formed, and use a non-bypassing sealing collar with removal handles. Accufit Welded Expanded Media is designed in accordance with the ISO 4406:1999 standard.

The filter media loads on the surface of the filter, trapping particles in its many tortuous grid paths. Useful for high-flow and strength, without significant increased differential pressure imposed from the filter. It is the opposite of a depth filter—one that loads particulate on the surface of the filtering layers—not in them. As such, when finished, it will hold large amounts of solids—and still drain liquid, as it is highly porous. One of the unique features of this filter is that it may be "tweaked" as necessary to accommodate a wide array of liquid filtering conditions—e.g. greater throughput, tighter micron retention, etc...

EXPANDED MEDIA MODEL NUMBER CODING SYSTEM



(NMO) NYLON MONOFILAMENT
(PMO) POLYPROPYLENE MONOFILAMENT

BAG SIZE

INTEGRATED POLYMERIC SUPPORT®

NMO-100-QW-P2-DP-IP

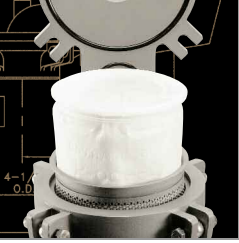
OPTIONS

BASE LAYER AND NUMBER OF PLYS

DELTA-P INSERT
STRUCTURAL SUPPORT

EXAMPLES	FILTRATION RANGE (µm)	MICRON RATINGS ACHIEVED FROM CONFIGURATION OF LAMINATED LAYERS												
		MATERIAL MICRON RATING	NUMBER OF PLYS											
		DW 2	TW 3	QW 4	5	SW 6	7	EW 8	9	XW 10	11	XII 12	XIV 14	
NMO-40-QW-P2	40 µm – 14 µm	40	28.8	20.7	14.9	10.7	7.7	5.6	4.0	2.9	2.1	1.5	1.1	0.6
NMO-40-EW-P2	40 µm – 4 µm	65	46.8	33.7	24.3	17.5	12.6	9.1	6.5	4.7	3.4	2.4	1.8	0.9
NMO-40-XW-P2	40 µm – 2 µm	100	72.0	51.8	37.3	26.9	19.3	13.9	10.0	7.2	5.2	3.7	2.7	1.4
NMO-40-XII-P2	40 µm – 1 µm	150	108	77.8	56.0	40.3	29.0	20.9	15.0	10.8	7.8	5.6	4.0	2.1
PMO-100-QW-P2	100 µm – 37 µm	200	144	104	74.6	53.7	38.7	27.9	20.1	14.4	10.4	7.5	5.4	2.8
PMO-100-SW-P2	100 µm – 19 µm	400	288	207	149	107	77.4	55.7	40.1	28.9	20.8	15.0	10.8	5.6
PMO-100-EW-P2	100 µm – 10 µm	600	432	311	224	161	116	83.6	60.2	43.3	31.2	22.5	16.2	8.4
PMO-100-XW-P2	100 µm – 5 µm	800	576	415	299	215	155	111	80.2	57.8	41.6	30.0	21.6	11.2

ULTRAFIT® WELDED HIGH PERFORMANCE LIQUID FILTER BAGS



ULTRAFIT WELDED STANDARD FEATURES

- Absolute Retention Ratings with efficiencies up to 99.98% (beta 5000)
- Graded-Density, *Composite Layer Design Technology*™ combines coarse and fine layers to optimize flow, efficiency, and dirt-holding capacity
- Individual layers of absolute rated media create high loading, depth filtration
- Progressive filtration removes particles of decreasing size with each successive layer
- *Integrated Polymeric Support* is a standard design feature
- Polypropylene Construction: Series 100, 500, 800
- 100% FDA compliant materials (21 CFR 177.1520)
- Support Jacket prevents fiber migration downstream
- *TruSeam*™ finished edge and inverted bottom
- Replaces cartridges and other more expensive filter media
- Individually wrapped for cleanliness
- Single-use, disposable filter bag



Graded Density, Composite Layer Design Technology™ promotes full-depth filtration and enhanced solids loading.

INTEGRATED POLYMERIC SUPPORT® AND DELTA-P INSERT (DP)

- A structural layer is ultrasonically laminated within the internal composite of the bag
- Allows the filter bag to sustain significantly greater differential pressure before change-out is required, without increased pressure drop
- Longer run times allow enhanced solids loading

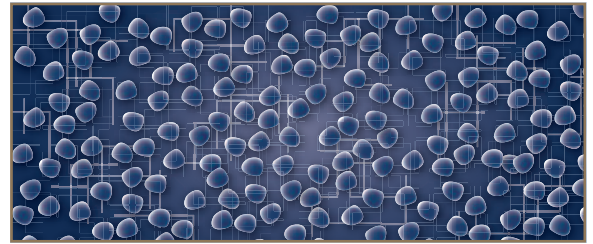


Ultrafit *Welded IP* - Integrated Polymeric Support

ULTRAFIT® WELDED HIGH PERFORMANCE LIQUID FILTER BAGS

Ultrafit Welded 100 Series

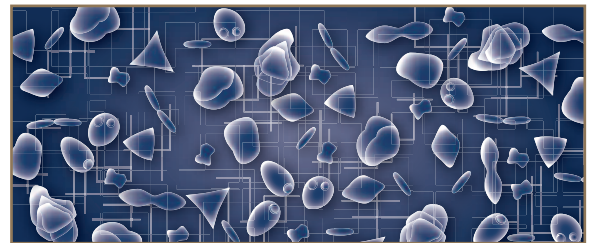
- Ideally suited for batch filtration, polishing, or as a final filter
- Low to medium solids holding capacity
- Designed to filter liquids where the range of particle size is narrow and consistent
- Provides highly efficient liquid filtration for applications requiring consistent levels of purity
- *Integrated Polymeric Support* is a standard design feature
- 97% efficiency ratings
- Available micron ratings: 1, 2, 5, 10, 25, 50, 100, 200



The Ultrafit Welded 100 liquid filter bag is ideally suited for batch or smaller applications, or as a final filter where the range of particle size is narrower and more consistent.

Ultrafit Welded 500 Series

- For applications requiring high-purity results
- High solids loading capacity
- 60% more surface area than *Ultrafit* 100 filter bags
- Designed to filter liquids where particles vary in both size and distribution
- *Integrated Polymeric Support* is a standard design feature
- 99% efficiency ratings (beta 100)
- Available micron ratings: 1, 2, 5, 10, 25, 50



For applications demanding both high loading and efficiency, the Ultrafit Welded 500 filter bag has the unique ability to filter liquids where particles vary in both size and distribution.

Ultrafit Welded 500 EXP® Series

- Sub-micron rated retention
- Multiple layers of the same micron rating allow finer filtration
- *Integrated Polymeric Support* is a standard design feature
- 99% efficiency ratings (beta 100)
- Available micron ratings: <1.0

Ultrafit Welded 800 Series

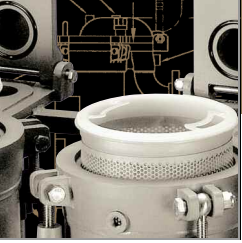
- Sub-micron rated retention
- Ideal for high-purity and critical liquid process applications
- *Integrated Polymeric Support* is a standard design feature
- 99.98% efficiency ratings (beta 5000)
- Available micron ratings: 0.4, 0.6, 0.8

Ultrafit Welded 800 EXP Series

- Sub-micron rated retention
- Multiple layers of the same micron rating allow finer filtration
- *Integrated Polymeric Support* is a standard design feature
- 99.98% efficiency ratings (beta 5000)
- Available micron rating: 0.2

Our vessels and filter media are specifically designed to work together as a system, maximizing efficiency and results.





ULTRAFIT WELDED - AMT® SERIES

Standard Features and Materials of Construction

- Multi-Layer, High Performance Liquid Filter Bag
- Graded Density, *Composite Layer Design Technology™*
- Antimicrobial agent incorporated into the final filtering layers of the bag
- 99.98% efficiency ratings (beta 5000)
- Materials of construction: 100% FDA Compliant Polypropylene
- Single-use, disposable filter bag
- Available micron ratings: 0.4, 0.6, 0.8, 1, 3, 5

Benefits of Antimicrobial Technology

- Antimicrobial agent inhibits the growth of broad spectrum bacteria, fungi, protozoa, and yeast on the treated layers
- Antimicrobial agent lasts the life of the filter
- Non-Toxic and insoluble in water

Q&A AMT® Series

What are some uses for Ultrafit Welded-AMT Series High Performance Filter Bags?

When properly installed in a Filtration Systems *Over-The-Top®* design housing, *Ultrafit Welded-AMT Series* filter bags are useful in filtering many types of liquids, including water, transformer cooling oil, synthetic oil, lubricants, paints, and other water-based liquids, when prevention of fluid contamination during the filtering process is important to the final product.

Why is Antimicrobial Protection important for my filtering process?

Microorganisms can contaminate liquids causing spoilage, odor, degradation, and reduced shelf life of products. Other effects of contamination may include changes in viscosity or pH, discoloration, gassing during processing, or swelling of finished product containers. During the filtering process the formation of *biofilms* may inhibit liquid flow, contaminate or corrode process piping, and affect heat exchange.

How does Antimicrobial Technology work?

Antimicrobial additives disrupt the metabolic function of thin walled, aerobic and anaerobic microorganisms, inhibiting their ability to function, grow, and reproduce on the filter media.

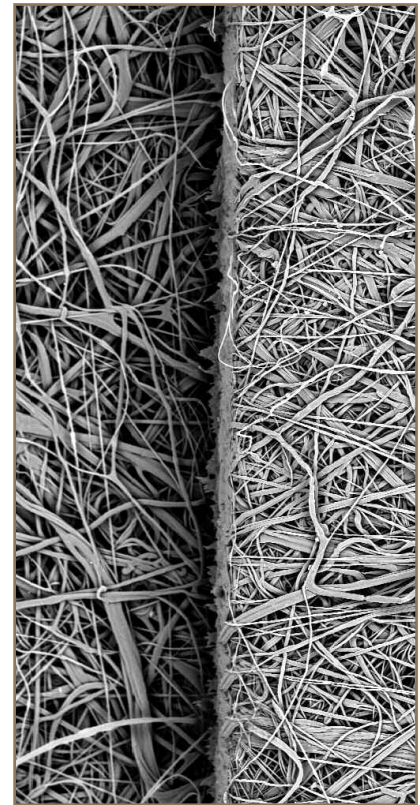
How is the Antimicrobial agent built into the media?

The antimicrobial agent is incorporated into the polymeric voids of the polypropylene fiber, without affecting the physical properties of the fiber. The submicron-sized particles migrate to the surface of the fiber, where they become an integral part of the microfibril. Since it is part of the fiber, not a surface coating, it will not wash or wear out. The antimicrobial agent is insoluble in water and lasts the life of the filter.

Is it safe?

Antimicrobial agents only attack thin-walled cells. Human and animal cells are thick-walled, and are therefore impermeable to the antibacterial additive. The antimicrobial agent, Triclosan (Chlorinated Phenoxy Compound), is registered with the EPA as a safe, non-toxic product.

NOTE: The *Ultrafit Welded-AMT* Filter Bag does not protect users or others against food-borne (or disease causing) bacteria. Mechanical Manufacturing Corporation, Filtration Systems Division is not making any health claims for this product.



ULTRAFIT® WELDED-NYLON SERIES HIGH PERFORMANCE LIQUID FILTER BAGS

ULTRAFIT WELDED - NYLON SERIES STANDARD FEATURES

- 100% FDA compliant Nylon, including *Zero-Bypass Collar*
Upstream Jacket: Nylon Web
Filter Material: Meltblown Nylon 6 Microfiber
Downstream Support Jacket: Nylon Monofilament
- *Composite Layer Design Technology™*
- Individual Layers of absolute rated media create high-efficiency, depth filtration
- *Integrated Polymeric Support®* is a standard design feature
- Suitable for Sanitization, Autoclaving, or In-Situ Steam Sterilization
- No mildew or bacterial effects
- Abrasion resistant
- Thermally and Chemically compatible with a broad range of applications where Polypropylene is not suitable
- Sustains temperatures up to 350° F
- Individually wrapped for cleanliness
- Single-use, disposable filter bag

Ultrafit Welded - N Series

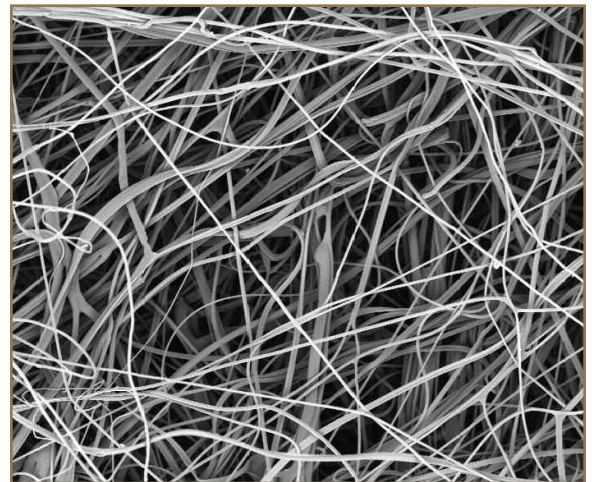
- 99.9% efficiency ratings (beta 1000)
- Available micron ratings:
1, 5, 10, 25, 50

Ultrafit Welded - N EXP Series

- Sub-micron rated retention
- Multiple layers of the same micron rating allow finer filtration
- 99.9% efficiency ratings (beta 1000)
- Available micron ratings: <1.0



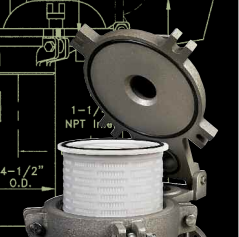
Ultrafit Nylon Filter Bag Composition



Close-up view of Nylon Microfiber

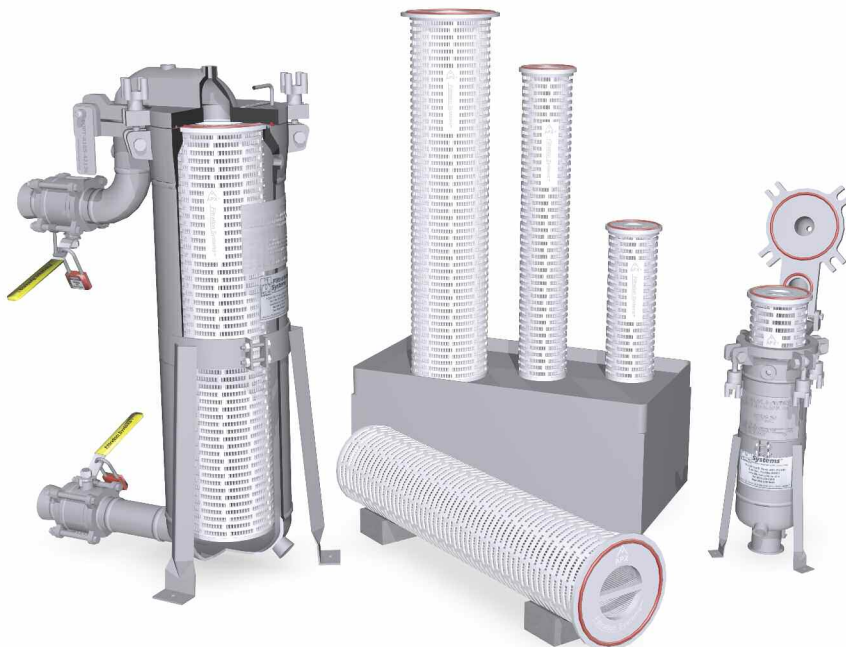


Filtration Systems APX® HIGH-CAPACITY ELEMENT



LARGE DIAMETER, DROP-IN CARTRIDGE FILTER ELEMENT

Advanced filter technology
specifically designed for
Over-The-Top® Vessel Systems



FEATURES

- Inside to outside flow configuration allows the finest micron retention to have the greatest allocation of surface area
- Graded-design, controlled porosity depth media for precise particle retention and consistent performance
- Deep-pleated design and structurally reinforced upstream/downstream for product stability
- Long cycle times and enhanced life make them more economical than using standard cartridge filters
- Greater surface area due to larger physical size compared to other competitive products, providing lower cost-per-gallon to filter
- Retrofits most standard #2, #4 & #5 size filter housings, avoiding the capital expense of new equipment
- Easy to use drop-in design *requires no support basket* for use, further reducing pressure buildup
- Filtered solids are contained within the element, so removal of the cartridge fully eliminates vessel cleaning

SPECIFICATIONS

- Available in three sizes:
APX-728: 7" Dia. x 28" L **APX-412:** 4" Dia. x 12" L **APX-422:** 4" Dia. x 22" L
- Materials of Construction: 100% Polypropylene
- All materials are FDA listed for food contact in Title 21 of U.S. Code of Federal Regulations
- Absolute-rated efficiency of 99% available in seven-micron ratings: 0.5, 1, 5, 10, 25, 50 and 100. (ASTM F 795 Test)
- Maximum Flow Rate (water) **APX-728:** 90gpm **APX-412:** 20gpm **APX-422:** 30gpm
- Maximum Operating Temperature 176°F/80°C
- Maximum Recommended Change-out Differential 35 psid
- Maximum Differential Pressure of the APX® element 50 psid at 68°F and 45 psid at 120°F
- *PurSeal*® flange provides hydrostatic compression seal when used in our *Over-The-Top*® design housings, eliminating bypass of unfiltered liquid downstream
- EPR/EPDM standard gasket material



Easy to use drop-in design requires
no support basket.



APX Filter Element combines large
surface area and high flow rate to
provide massive solids loading with
longer run times in a unique,
oversized drop-in design.



OVER-THE-TOP® DESIGN FILTER HOUSINGS

The *Over-The-Top®* Housing Design, featured on all Filtration Systems vessels, maximizes filtration performance by preventing bypass of unfiltered liquid. When the vessel is closed, the machined face of the lid compresses the top of the Zero-Bypass® or PurSeal® bag collar, forming an absolute seal. As there is no “dead space” between the top of the collar and the housing lid, unfiltered liquid cannot accumulate in the housing, eliminating clean-up of the vessel interior during change-out. The used filter bag or element, containing filtered solids, is simply removed and replaced.

FILTER BAG FEATURES

Graded-Density, Composite Layer Design Technology™

Individual layers of absolute rated media, sequenced in a proprietary array, are ultrasonically laminated and constructed with patented techniques that form our high performance filter bags. Final layers of dense media on the downstream side, preceded by higher lofted upstream layers, having high void volume, achieve an ideal balance of dirt-holding capacity, efficiency and mechanical strength.

IP Series-Integrated Polymeric Support® and Delta-P Insert (DP)

A structural layer, ultrasonically laminated within the internal composite of the filter, allows the bag to sustain significantly greater differential pressure before change-out is required, without increasing initial pressure drop. Longer run times allow enhanced solids loading. IP is a standard feature on *Ultrafit 100*, *Ultrafit 500*, *Ultrafit 500 EXP*, 800 Series, and *Accufit* Welded Filter Bags.

EXP® Series

The *EXP* filter bag is comprised of multiple layers of the same micron rated filter media, exponentially increasing the efficiency and performance ratings of the *Ultrafit* Welded High Performance Liquid Filter Bag. The use of redundant layers of the same porosity makes the *EXP* bag ideally suited for use as a final or polishing filter, when precise, sub-micron retention is required. IP- Integrated Polymeric Support™ is a standard feature of *Ultrafit* EXP Filter Bag. *EXP* Series is available in the *Ultrafit 500* and *Ultrafit 800* sub-micron rated filter bags.

FILTER MEDIA

Meltblown Microfiber Filter Media

The meltblown production method generates fine fibers, with precise diameters, extruded from molten polymer resin. Uniform diameter fibers, with controlled web formation, accurately establish the porosity of the filter media. These microfibers are thermally bonded to each other, and then calendered into layers, forming a non-woven web. This web, having high void volume, is capable of capturing large amounts of solids. The bonding process prevents fiber migration and creates a fixed pore structure, adding mechanical strength. Filtration occurs by deposition of particles throughout the depth of the media; as a result, microfiber cannot be washed or reused. Filtration Systems offers *Ultrafit* Welded Polypropylene and Nylon microfiber filter bags, manufactured with 100% FDA compliant materials.

Disposable, single-use bags are available in absolute ratings of .2 to 200 micron, with efficiencies of 97% to 99.98%.



Thermally Bonded Continuous Filament

A non-woven filter media fabricated from filaments that are formed, extruded and thermally bonded. This production method yields finer fiber diameters controlling the apertures that more accurately establish porosity. The resulting filter fabric has greater flexibility and tensile strength. Filtration Systems offers *Accufit* Welded *SuperBond* filter bags in Polypropylene or Nylon materials; in ratings from 1 to 100 Micron with 90% efficiency ratings.

Needled Felt Filter Media

A filter media constructed of interlocking fibers, mechanically bound to a web. Needled felt features a three-dimensional porous structure, creating a medium having high flow rate, solids loading, and depth filtration characteristics.

Filtration occurs by capturing particles throughout the depth of the media; as a result, needled felt cannot be washed or reused. Needled felt is the most commonly used non-woven fabric for liquid filtration. Our polypropylene felt is not registered as FDA compliant, as it is manufactured with needles on a loom, requiring lubrication.

Filtration Systems offers *Accufit* Welded polypropylene felt filter bags, in a nominal micron range of 1-200, with efficiency ratings of 60% to 70%.

When choosing filter media 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. *Filtration Systems* offers various methods to help users determine the best filter media to meet specific performance requirements.

Ultrafit Welded Calibrated Test Bag

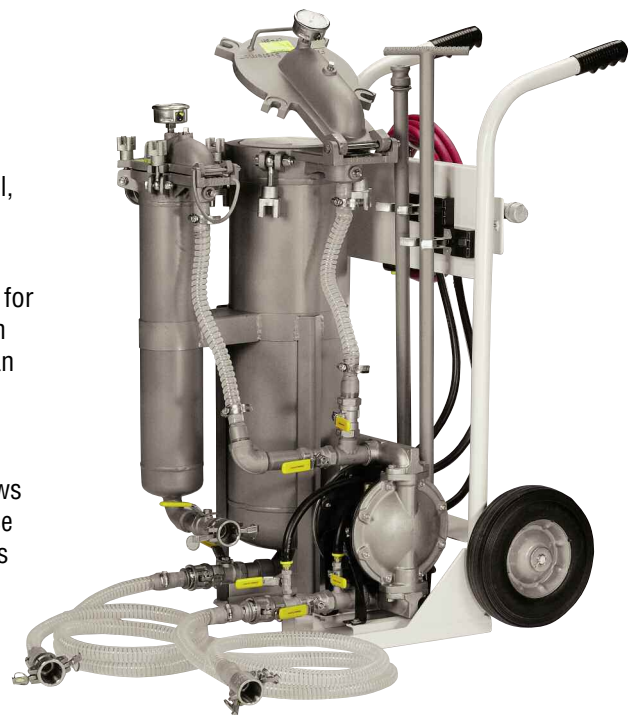
This unique and patented filter bag is an economical and rapid method for evaluating the size and distribution of solids present in a liquid. Six calibrated layers of absolute rated, melt-blown microfiber collect larger solids in the upstream section, while finer particles are captured in the downstream layers that follow. Observation of visible loading in one or more of the calibrated layers can assist users in determining the micron rating of *Ultrafit* Welded Liquid Filter Bags to meet their filtration needs.

Portable Test/Process System

The Portable Test/Process System consists of two filter housings and a double-diaphragm pump, mounted on a mobile cart. This self-contained system runs on factory compressed air. A valve, located next to each vessel, allows liquid flow to be directed through either filter housing for testing or batch processing.

Small quantities of liquid may be run through the smaller housing (NS-151) for sample testing, allowing validation of the filtered liquid (effluent) based upon observation or evaluation. The larger housing (NS-122) may be used with an *Accufit* or *Ultrafit* Welded filter bag, or APX cartridge Element to determine solids loading characteristics, which can be “scaled-up” (extrapolated) to provide general sizing information for full-size production applications. Additionally, filtering with an *Ultrafit* Calibrated Test Bag in the NS-122 allows the user to determine the micron rating of *Ultrafit* Welded High Performance filter bag for their process. By observing visible performance characteristics of specific filter media, users benefit by participating in their own Quality Control Testing Process.

In addition to its test function capabilities, the Portable Test/Process System is a very desirable piece of equipment for any factory, due to its versatility as a “go-anywhere” portable filtering system.



Model PNS-151/122-35

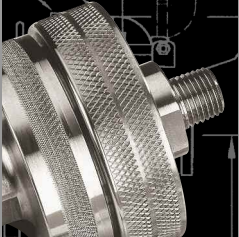
Filtration Systems Particle Characterization Studies

Filtration Systems offers Particle Characterization Studies of liquid samples.

Particle Analysis provides meaningful data, useful in identifying filtration requirements for the selection of equipment and Filter Media. Particle Analysis includes:

1. Photo-Microscopic Particle Imaging for size and distribution evaluation.
2. Electronic Particle Characterization Study of customer supplied samples(s), including particle distribution, size variance and frequency analysis.

Our firm understands the need for client privacy; maintaining your trust and confidence is important to us. We do not disclose any professional or non-public information about our clients, former or current, obtained in the course of our assistance to them.



DISC FILTER HOUSING SYSTEMS

PORTABLE DISC FILTER HOUSING SYSTEM

The Portable Disc Filter Housing System consists of a Variable Compression Disc Filter and an adjustable flow, diaphragm pump. This system is designed for sample testing, validation and optimum media selection.

Applications

- Collect data to determine the optimum grade of filter media for your specific requirements
- Test filter media on a small scale basis for all General Filtration and Microfiltration applications
- Sample small amounts of liquid for process scale-up or pilot studies, or from production runs
- Evaluate the performance characteristics of *Ultrafit*[®] and *Accufit*[®] Welded Filter Bag products



Model PPDF-4, Portable Disc Filter Housing System

DISC FILTER HOUSING

The *Variable Compression Disc Filter Housing* secures the *Ultrafit* Welded 47mm composite layer filter disc, while a small amount of liquid is filtered. Visual observation or analysis of the filtered liquid helps users select the optimum media for specific applications.

Housing Design Features

- Variable Compression design assures an absolute seal with media of various thickness and multiple layers
- 3-Piece Housing is simple, portable, and economical to use
- Threaded Compression Ring allows easy opening and closing
- Stainless Steel Housing is compatible with most test liquids
- 1/4" NPT Inlet and Outlet Connections
- Buna-N O-Ring included

Filter Disc Features

- 47mm Filter Discs replicate *Filtration Systems* filter media with *Composite Layer Design Technology*[™]
- Ultrasonically sealed circumference eliminates bypass and directs liquid flow through the filter disc
- Available in all micron ratings of *Ultrafit* Welded 100, 500, and 800 Series Liquid Filter Bags
- *Accufit* Welded Filter Discs also available



Variable Compression Disc Filter Housing and 47mm Composite Layer Filter Discs



Component parts of the Variable Compression Disc Filter Housing

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 and evaluation, 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 resulting from the resale, direct or indirect misuse, incidental or consequential damages, arising out of the use of this product.

Product Identification: All *Filtration Systems* filter vessels have a unique serial number that can be identified by our factory. Nameplates, specifying both the serial number and maximum allowable pressure and temperature ratings, are permanently affixed to all housings.

Product Specifications: With over 50 years of industry expertise and proven performance, *Filtration Systems* offers quality products at responsible prices. We continually strive to improve our products through ongoing research and development; therefore, we reserve the right to change specifications without notice.

Intellectual Property: *Filtration Systems* products offer exclusive manufacturing technology. Our company is committed to protecting its patents, trademarks, and proprietary rights from those who would wrongfully use them.

Partial Listing of Registered Trademarks of Mechanical Mfg. Corporation...

Over-The-Top[®], Ultrafit[®], Accufit[®], SuperBond[®], APX[®], AMT[™], Zero-Bypass[®], PurSeal[®], TruSeam[™], IP Series - Integrated Polymeric Support[®], EXP[®] Series, Composite Layer Design Technology[™], ELC[®] Engineered Laminate Composite.



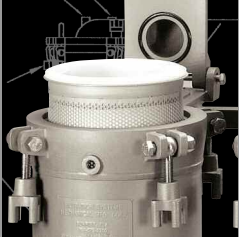
Filtration Systems FILTER MEDIA PRODUCT SPECIFICATIONS

LIQUID FILTER BAG COMPONENTS & SPECIFICATIONS

SERIES	ACCUFIT® SUPERBOND® IP	ACCUFIT Expanded Media	ULTRAFIT® 100 IP	ULTRAFIT 500 IP	ULTRAFIT 500 EXP	ULTRAFIT 800 IP	ULTRAFIT 800 EXP	ULTRAFIT-NYLON IP	ULTRAFIT-NYLON EXP	ULTRAFIT AMT	ULTRAFIT Test Bag
	Thermally Bonded Continuous Filament	•		•	•	•	•	•	•	•	•
Laminated Monofilament Layers, Polypropylene or Nylon		•									
Meltblown Microfiber, Polypropylene (P) or Nylon (N)			P	P	P	P	P	N	N	P	P
Graded-Density, Composite Layer Design Technology™			•	•		•		•		•	•
IP-Integrated Polymeric Support®	•		•	•	•	•	•	•	•	•	•
Sieve Layer	•		•	•	•	•	•	•	•	•	•
FDA Compliant Materials(CFR Title 21, Silicone Free)	•	•	•	•	•	•	•	•	•	•	•
Zero-Bypass® Bag Collar with Dual Lift-Out Handles	•	•	•	•	•	•	•	•	•	•	•
Efficiency Rating	Nominal	Nominal	97%	99%	99%	99.98%	99.98%	99.9%	99.9%	99.98%	99%
Maximum Temperature (deg. F)	180°(P) 340°(N)	180°(P) 340°(N)	180°	180°	180°	180°	180°	340°	340°	180°	180°
Available Sizes	1,2, 3,4,5	1,2,4,5	1,2,4,5	1,2	1,2	1,2,4,5	1,2,4,5	1,2	1,2	1,2	2

MICRON RATING AVAILABILITY

MICRON RATING	.2	.4	.6	.8	<1	1	2	5	10	20	25	40	50	100	200	400	600
NOMINALLY RATED FILTER BAGS																	
ACCUFIT® SUPERBOND® IP						•		•	•		•		•	•			
ACCUFIT Expanded Media					•	•	•	•	•	•	•	•	•	•	•	•	•
ABSOLUTE RATED HIGH PERFORMANCE FILTER BAGS																	
ULTRAFIT® 100 IP						•	•	•	•		•		•	•			
ULTRAFIT 500 IP						•	•	•	•		•		•				
ULTRAFIT 500 EXP					•												
ULTRAFIT 800 IP		•	•	•													
ULTRAFIT 800 EXP	•																
ULTRAFIT NYLON IP						•		•	•		•		•				
ULTRAFIT NYLON EXP					•												
ULTRAFIT AMT		•	•	•		•		•									
LARGE DIAMETER, DROP-IN CARTRIDGE FILTER ELEMENT																	
APX® HIGH-CAPACITY ELEMENT					•	•		•	•		•		•	•			



Filtration Systems

FILTER MEDIA PRODUCT SPECIFICATIONS

MAXIMUM FLOW RATES

gpm (water)	FILTER BAG SIZE			
	P2	P1	P4	P5
ACCUFIT® SUPERBOND® IP	90	75	35	65
ACCUFIT Expanded Media	120	75	40	50
ULTRAFIT® 100 IP	60	45	16	30
ULTRAFIT 500 EXP	30	15	–	–
ULTRAFIT 500 IP	40	30	–	–
ULTRAFIT 800 IP	20	12	6	10
ULTRAFIT 800 EXP	15	8	3	6
ULTRAFIT NYLON IP	40	25	–	–
ULTRAFIT NYLON EXP	25	15	–	–
ULTRAFIT AMT	23	12	6	10

APX® HIGH-CAPACITY ELEMENT	ELEMENT SIZE		
	728	412	422
	90	20	30

MAXIMUM DIFFERENTIAL PRESSURE

(psig) Initial Pressure plus...	FILTER BAG SIZE			
	P2	P1	P4	P5
ACCUFIT® SUPERBOND® IP	30	30	30	30
ACCUFIT Expanded Media	35	35	35	35
ULTRAFIT® 100 IP	34	34	34	34
ULTRAFIT 500 EXP	34	34	–	–
ULTRAFIT 500 IP	34	34	–	–
ULTRAFIT 800 IP	30	30	30	30
ULTRAFIT 800 EXP	30	30	30	30
ULTRAFIT NYLON IP	24	24	–	–
ULTRAFIT NYLON EXP	34	34	–	–
ULTRAFIT AMT	30	30	30	30

APX® HIGH-CAPACITY ELEMENT	ELEMENT SIZE		
	728	412	422
	35	35	35

GENERAL CHEMICAL COMPATIBILITY OF POLYPROPYLENE AND NYLON

CLASSIFICATION	TYPICAL EXAMPLES	POLYPROPYLENE	NYLON
BASES (ALKALIES)	Amines, Ammonium Hydroxide, Potassium Hydroxide, Sodium Hydroxide	Generally Compatible	Testing Recommended
BRINES	Calcium Chloride, Potassium Chloride, Sodium Bromide, Sodium Chloride	Generally Compatible	Generally Compatible
INORGANIC ACIDS	Boric, Dilute Nitric, Dilute Sulfuric, Hydrochloric, Phosphoric	Generally Compatible	Testing Recommended
ORGANIC SOLVENTS	Alcohols, Amides Cellosolves, Esters, Esthers, Glycols, Ketones	Testing Recommended	Generally Compatible
	Aromatics (Benzene, Toluenes, Xylenes)	Not Recommended	Generally Compatible
	Petroleum Products (Aviation Gasoline, Diesel Fuel, Kerosene)	Not Recommended	Generally Compatible
	Hydrocarbons (Fats, Hexane, Octane, Oils, Petroleum Ether)	Testing Recommended	Generally Compatible
	Halogenated Hydrocarbons (Methylene Chloride, Perchloroethylene)	Testing Recommended	Testing Recommended
SALT SOLUTIONS	Aluminum Chloride, Sodium Nitrate, Sodium Sulfate	Generally Compatible	Generally Compatible
WATER	Ambient (Nylon is not recommended for hot water)	Generally Compatible	Generally Compatible
Maximum temperature limits for any fluid. Requires evaluation on an individual basis.		180° F	340° F

Important Note on Chemical Compatibility: The information presented in this table is based on exposure at room temperature and is for general guidance only. In most cases, the use of specific filtering material, such as polypropylene, nylon, or cellulose, can be safely recommended without special testing. However, since 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 exposure should be considered, as they may compromise the structural integrity and performance of the filter media.



The cornerstone of *Filtration Systems* philosophy is Customer Satisfaction. Our commitment extends to product quality, prompt delivery, and system recommendation.

We serve the following industries and their distributors:

- Chemical & Petrochemical Processing
- Pharmaceutical, Cosmetic and Biotechnology Processing
- Water Treatment, Purification and Reclamation
- Food, Beverage & Fermentation
- Electronic Components, Photo & Audio Visual
- Surface Technology, Cleaning Machines, Nuclear
- Critical Liquid Applications

With over 50 years of Industry experience, *Filtration Systems* is ISO 9001:2015 Certified in the Design and Manufacture of Liquid Filter Housings and Media.



Filtration Systems

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