



Pall Corporation

Marksman™

High-Capacity
Filtration Systems

6"
(15.2 cm)

Filtration. Separation. Solution.™

Expanding the Filtration Horizon

High-Performance Filtration

Pall, a world leader in filtration and separations technology, has developed a range of filters that combines the performance advantages of cartridge filters with the ease-of-use of bag filter systems. The resulting Marksman™ Series filters offer a unique combination of benefits and economics. Filtration customers now have a smart, cost-effective alternative to bag filters.



At the heart of the Marksman Series of filters is Pall's proprietary filter media. Pall's range of advanced filter media provides higher removal efficiencies and longer service life than most other filters of equal efficiency. The unique configuration of the Marksman filters offers significantly higher surface area than conventional filters or bag technologies and exceptional dirt-holding capacity.

Exceptional Flexibility

Ease of Use

The large 6 in (15.2 cm) diameter Marksman Series filters easily retrofit into existing Size 1 and Size 2 bag housings. In addition, these high-capacity filters also fit into the new Size 4 (40 in/101.6 cm) Marksman housing. One Size 2 Marksman Series filter replaces up to 16 standard 10 in (25.4 cm) filters, making change-outs quick and easy.

The user-friendly design of the Marksman Series filters eliminates the hardware commonly associated with cartridge filtration systems. Also, there are no tube guides, springs, or compression plates to maintain. This results in faster cartridge change-outs and reduces system downtime.

In addition, the inside-to-outside fluid flow ensures that the unwanted particles are trapped within the element. This significantly reduces the possibility of contaminating the clean, downstream side of the filter housing during element change-out.

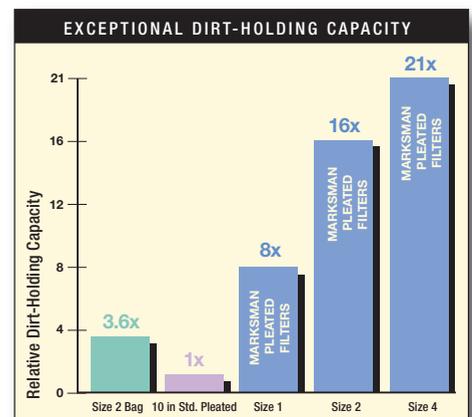
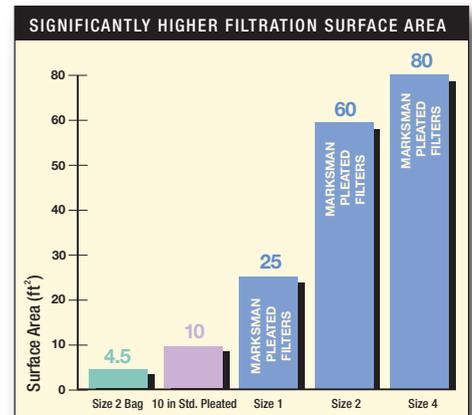
Adaptability

No longer will filtration performance be limited by the original selection of system hardware. As filtration requirements change, Marksman Series filters can easily retrofit into existing bag systems, with little or no additional hardware investment.

For example, Marksman Series filters can be used during normal process conditions, where bag filters may be used for short periods of time during upset conditions. Similarly, Marksman filters can be used for critical batches, while bag filters may be used for less critical production runs. Marksman Series filters can also be used as a complementary technology to existing bag filters.

Lower Operating Costs

Marksman Series filters deliver lower operating costs than most conventional filters for critical applications. The high surface area and resulting long service life translates into fewer cartridge change-outs and lower disposal costs. The large diameter configuration is more economical than the equivalent number of standard 10 in (25.4 cm) filters, thus delivering additional savings on filter purchases.



The graphs above compare high-efficiency bags and 10 in (25.4 cm) standard pleated filters with Marksman PFT filters. The comparison is typical for most filter grades.

Unique Design

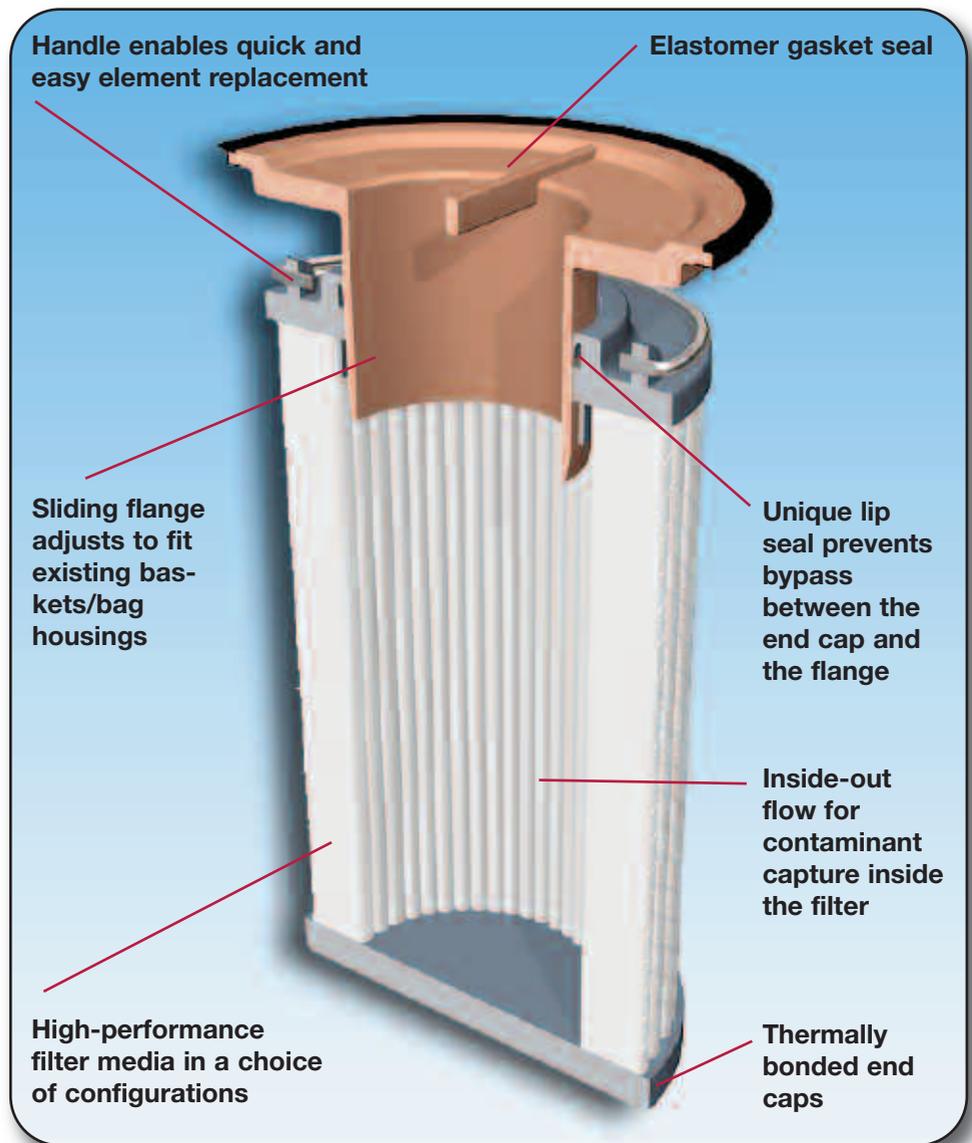
Innovative Technology

Marksman Series filters are manufactured in Pall's state-of-the-art facilities and contain the most advanced melt-blown and pleated media in the industry. Pall's proprietary melt-blowing technology produces media for the sole purpose of filtration. Our attention to detail throughout the entire manufacturing process ensures a high-quality product with unmatched performance.

Other technology benefits include:

- Unsurpassed consistency
- Consistent¹ removal efficiencies
- High-porosity for maximum dirt-holding capacity
- Wide range of product offerings (polypropylene and glass media)
- Customized products for specific applications

¹ Removal efficiencies based upon a modified ASTM F795 Dynamic Single Pass Efficiency Test.



Marksman Series Filter Elements

Construction

Filter Grades

Marksman Series Filter Elements	Construction	Filter Grades
Marksman DFN filters	Pleated surface glass filter	1.5 to 40 microns
Marksman NXA filters	Melt-blown polypropylene depth filter with proprietary CoLD Melt™ technology	5 to 70 microns
Marksman PFT filters	Pleated surface melt-blown polypropylene filter	1 to 150 microns
Marksman XLD filters	Pleated depth melt-blown polypropylene filter	1.5 to 70 microns

Features and Benefits

Product Feature	Product Benefit	Customer Benefit
Large 6 in (15.2 cm) diameter element	<ul style="list-style-type: none"> • High-flow capacity • High surface area 	<ul style="list-style-type: none"> • Lower filtration costs due to fewer filter elements • Lower labor costs due to fewer cartridge change-outs • Lower energy costs as a result of lower initial differential pressures • Quick and easy filter change-outs • Lower disposal costs
High-performance, proprietary media	<ul style="list-style-type: none"> • Precise filtration performance • Highly consistent performance • Wide range of removal ratings 	<ul style="list-style-type: none"> • High-performance filtration in critical applications • Consistent and reproducible filtration results over time • Less rework due to inconsistent filtration
Inside-to-outside flow	<ul style="list-style-type: none"> • Contaminant captured inside the filter • Eliminates contaminant falling into the downstream (clean) section of the housing during element change-outs 	<ul style="list-style-type: none"> • Faster element change-outs • Faster system start-ups • Improved product quality
Unique adjustable flange design	<ul style="list-style-type: none"> • Retrofits most existing Size 1 and Size 2 bag filter housings and baskets • Size 4 (40 in/101.6 cm) fits a standard 40 in Marksman housing • Flexibility to use bag filters or cartridges 	<ul style="list-style-type: none"> • No need to purchase new hardware • Uses existing bag filter systems • Lower capital costs • Easy to switch from bag filtration to cartridge technology
All polypropylene construction	<ul style="list-style-type: none"> • Wide chemical compatibility 	<ul style="list-style-type: none"> • Compatible with a wide range of fluids • Ease of disposal
No center core	<ul style="list-style-type: none"> • Less flow resistance • Lower initial pressure drops 	<ul style="list-style-type: none"> • Improved flow rates • Lower energy costs
Re-usable stainless steel flange (option)	<ul style="list-style-type: none"> • Reduces element volume • Lower cost to replace elements • Can be used in higher temperature applications 	<ul style="list-style-type: none"> • Lower disposal volumes • Reduced filtration costs • Extends usability in elevated temperature applications

Product Line

Marksman filters are available in four configurations ...

Marksman PFT Series Filters

Marksman PFT filters are constructed of ultra-thin, proprietary melt-blown Poly-Fine® filter media. These high surface area, pleated, polypropylene filters deliver extremely long service life and are ideal for classifying filtration and for capturing non-deformable particulate.



Marksman XLD Series Filters

Marksman XLD (eXtended Life Depth) Series filters have a unique pleated depth configuration. They feature a thicker, multi-layered pleat pack that combines the best of pleated and depth technologies into a single cartridge.

The proprietary Poly-Fine media incorporated into the Marksman XLD Series filter makes these filters ideal for applications where the long life of a pleated filter is desired, and the presence of deformable particles requires the use of depth media.



Product Line

Marksman DFN Series Filters

Marksman DFN filters are constructed of micro fiberglass Duo-Fine® media. These 6 in (15.2 cm) diameter filters have a wide chemical compatibility and offer long service life. They are available in a variety of filter grades for specific applications.



Marksman NXA Series Filters

Marksman NXA filters deliver the same performance advantages of Pall's Nexis® Series filters, by utilizing the same proprietary CoLD Melt technology. The unique **Co-located Large Diameter** fiber construction produces a fiber matrix with excellent structural integrity to assure that the media does not shift, compress, or unload captured contaminant.

The proprietary manufacturing process produces a melt-blown depth filter with precise removal efficiencies, excellent consistency, and exceptional void volume for high contaminant-holding capacity.

An additional benefit of the inside-out flow configuration is that the finest filtration zone is on the outside of the filter, where the greatest surface area resides.



Product Line

Marksman Series Housings

Pall offers a complete range of Marksman Series filter housings for use with Marksman Series filters. Pall's ISO 9001 manufacturing facility operates under a world-class manufacturing philosophy with a never-ending focus on continuous improvement.

The 316L stainless steel Marksman housings are available in Size 1, Size 2, and Size 4 to accommodate a wide range of filters and bags. Single- and multi-cartridge housings, code and non-code designs are offered. Custom-engineered housings are also available. Contact a Pall representative for more information about custom designs.

Size 1 and Size 2 Marksman housings are equipped with standard bag housing baskets and allow the flexibility to switch between Marksman filters and traditional bags. The Size 4 housing is designed to hold only a 40 in (101.6 cm) length filter. All Marksman housings are sized to optimize the dirt-holding capacity of the element.



Marksman Filter Applications

Industry Applications

Automotive/ Industrial In-plant:	Parts washing, machine tool coolant, make-up water, pre-and post-RO, E-coat filtration, auto coatings, water and oil-based metal working fluids, wash rinses and baths
Chemicals:	Intermediates and fine chemicals
Electronics:	Pre-RO, process cooling water, wastewater, reclaim water, inks, CD/DVD, magnetic media, slurries
Food & Beverage: ²	Edible oils, corn syrup and sweeteners, food grade ethanol
Mining:	Make-up water for water/glycol fluids, long wall applications (raw water and emulsion return, emulsion top up)
Oil & Gas:	Amine, glycol
Power Generation:	Condensate, make-up water, water injection, cooling water
Primary Metals:	Make-up water, pre-and post-RO, process fluids, coatings, wire drawing
Pulp and Paper:	Trim squirts, shower water, seal protection
Refineries:	Amine, sour water

² **Food and Water Contact Use:** Please contact Pall Corporation for product applicability to specific National Legislation and/or Regional Regulatory requirements for food and water contact use.



Total Fluid ManagementSM

Pall is much more than a filter company. We are fluid management specialists who strive to make our customers' operations more successful. Our Total Fluid Management (TFM) program consists of a wide range of filtration products and services designed to help maintain a specified level of fluid cleanliness, leading to improved operations and reliability of the systems involved. To this end, we have developed a comprehensive program that leverages our strengths and provides true value to our customers.

We offer a variety of customized productivity and system services as part of our TFM program. A partial list of these services includes:

- Cleanliness/process audits
- Laboratory and pilot testing
- Customized product development
- Commissioning
- Equipment rental
- Remote monitoring
- Training seminars
- Reliability engineering
- Troubleshooting and system support
- System maintenance/service contracts

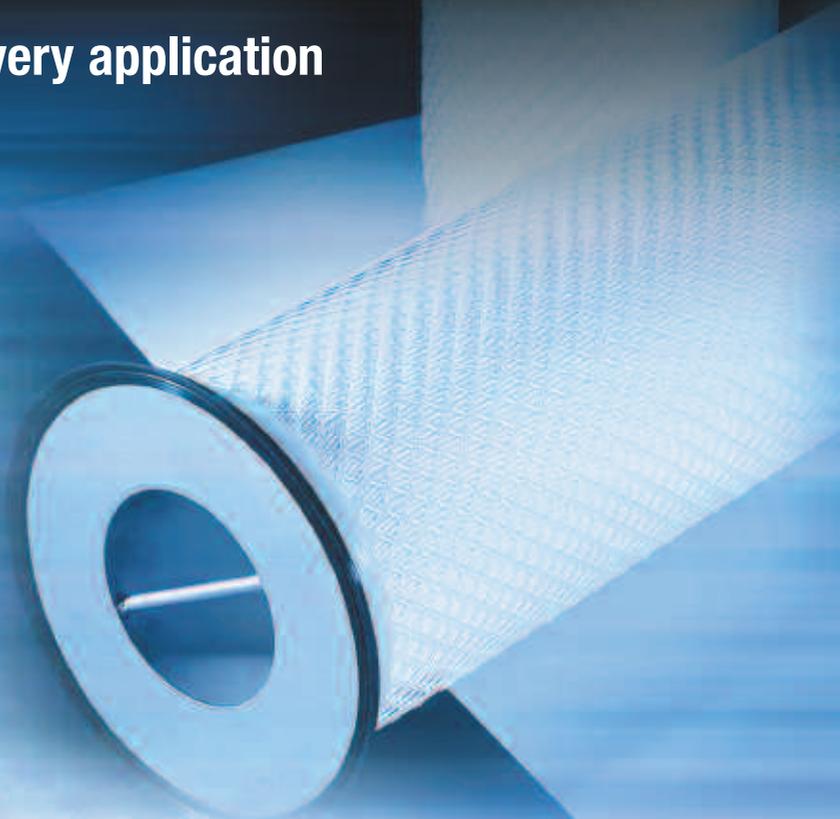
Pall Corporation - A Leader in Filtration Technologies

For more than 60 years, Pall Corporation has been solving complex contamination, separations and purification problems for diverse customers around the globe. With revenues of more than \$2 billion, Pall is the largest and most diverse filtration, separations, and purifications company in the world. Our products and services allow customers to meet regulatory requirements and increase output while reducing total cost of ownership. Our enabling technologies help make customers' products better, safer, and even possible.

With offices in more than 30 countries, we are well-positioned to provide assistance to customers on the local level, as well as offer broad-based, worldwide support when needed. At the core of our support network is our Scientific and Laboratory Services (SLS) department, an extensive global network of scientists and engineers who are experts in their field.

We invite you to learn more about Pall's wide array of products and services. For more information, contact your Pall representative or visit us on the web at: www.pall.com.

There's a Marksman filter for every application





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Pall Corporation has offices and plants throughout the world. For Pall representatives in your area, please go to www.pall.com/contact

Please contact Pall Corporation for product applicability to specific National legislation and/or Regional Regulatory requirements for water and food contact use.

Because of technological developments related to the products, systems, and/or services described herein, the data and procedures are subject to change without notice. Please consult your Pall representative or visit www.pall.com to verify that this information remains valid.

Products in this document may be covered by one or more of the following patent numbers: EP 830 191; US 5,591,335; US 5,653,833; US 5,681,469; US 5,690,782; US 5,730,820; US 5,733,581; US 5,741,395; US 5,783,011.

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