



Pall Corporation

Marksmanship

High Capacity
Filtration Systems

6"

Filtration. Separation. Solution.SM

Expanding The Filtration Horizon

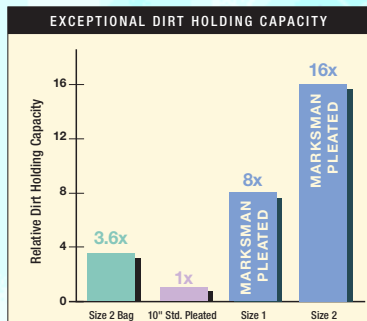
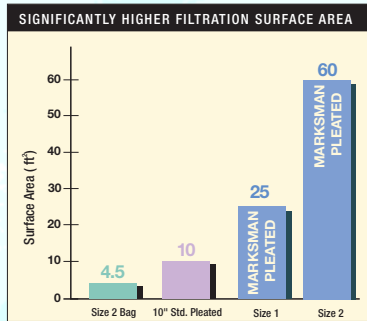
High Performance Filtration

Pall, a leader in filtration and separations technology, has developed a new range of filter elements that combine the performance advantages of cartridge filters with the ease of use of bag filter systems. The resulting MARKSMAN™ Series elements offer a unique combination of benefits and unmatched economics. Filtration customers no longer have to choose between cartridge and bag technologies.



The heart of the Marksman Series element is the proprietary filter media from Pall Corporation. Our range of advanced filter media provides higher removal efficiencies and longer service life than other cartridges of equal efficiency. The unique configuration of the Marksman Series element offers significantly higher surface area than conventional cartridge or bag technologies and exceptional dirt holding capacity.

Exceptional Flexibility



These two graphs compare high efficiency bags and 10" standard pleated filter cartridges with Marksman POLY-FINE® II elements. Comparison is typical for most grades of filter.

Ease of Use

The large six-inch (15.2 cm) diameter Marksman Series filter cartridges easily retrofit into existing size 1 and size 2 bag housings. In addition, one Marksman Series filter replaces up to 16 standard 10" (25.4 cm) filter cartridges, making change out quick and easy.

The user-friendly design of the Marksman Series filter elements eliminates the hardware commonly associated with cartridge filtration systems. There are no tube guide, springs or compression plates to maintain. This results in faster cartridge change outs, thus reducing 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.

Unmatched Flexibility

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

In addition, the filtration system can be adapted to changing process requirements. For instance, Marksman Series filter elements can be used during normal process conditions but quickly changed to bag filters during upset conditions. Similarly, Marksman filters can be used for critical batches, while bag filters are used for less critical production runs.

Lower Operating Costs

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

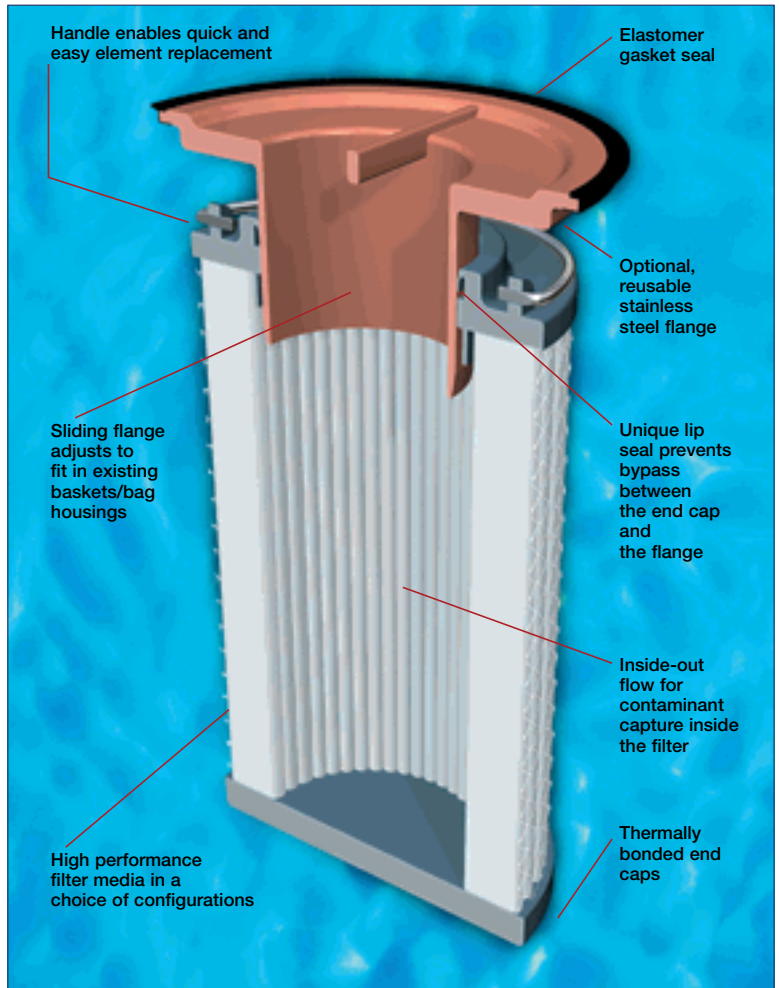
Energy costs are also lower with Marksman elements since, unlike standard filter cartridges, they do not contain a center core, a prime contributor to pressure loss.

Unique Design

Pall Innovative Technology

All Marksman Series filters are manufactured in Pall's state-of-the-art facilities and contain the most advanced melt blown media available. Our proprietary melt blowing processes produce media for the sole purpose of filtration. Our thorough attention to every aspect of the manufacturing process assures a product that offers unmatched performance:

- Unsurpassed consistency
- Precise, absolute rated removal efficiencies
- High porosity for maximum dirt holding capacity
- Broadest range of products
- Engineered products for specific applications



Marksman Series Filter Elements

Poly-Fine II

Poly-Fine XLD

NEXIS® A

Construction

Pleated Surface Melt Blown Polypropylene Filter

Pleated Depth Melt Blown Polypropylene Filter

Melt Blown Polypropylene Depth Filter with Proprietary CoLD Technology

Filter Grades (>99.9% Efficiency by ASTM F-795 Test)

1 to 150 microns

1.5 to 90 microns

3 to 70 microns

Features and Benefits

Product Feature	Product Benefit	Customer Benefit
Large 6" diameter element	High flow capacity High surface area	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 element change outs Lower disposal costs since fewer elements are used
High performance, proprietary media	Precise filtration performance Highly consistent performance Wide range of removal ratings	High performance filtration in critical applications Consistent and reproducible filtration results over time Less rework due to inconsistent filtration
Inside-to-Outside flow	Contaminant captured inside filter element Eliminates contaminant falling into the downstream (clean) section of the housing during element change out	Faster element change outs Faster system start-ups Improved product quality
Unique adjustable flange design	Retrofits most existing size 1 and size 2 bag filter housings and baskets Flexibility to use bag filters or cartridges	No need to purchase new hardware Use existing bag filter systems Lower capital costs Easy switch from bag filtration to cartridge technology
All polypropylene construction	Wide chemical compatibility FDA listed materials of construction	Compatible with a wide range of fluids Ease of disposal
No center core	Less flow resistance Lower initial pressure drops	Improved flow rates Lower energy costs
Optional re-usable stainless steel flange	Reduces element volume Lower cost replacement elements	Lower disposal volumes Reduced filtration costs

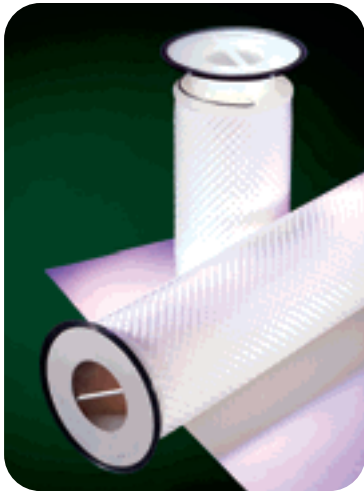
Product Line

Marksman Elements are Available In Three Configurations of Proven Pall High Performance Filter Media

Marksman Poly-Fine II Filters

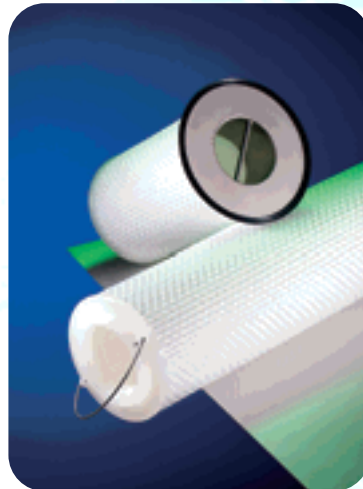
Marksman Poly-Fine II Series filters are constructed of ultra-thin, proprietary melt blown filter media. These high surface area pleated polypropylene filter cartridges deliver extremely long service life and are ideal for classifying filtration and for capture of non-deformable particulate.

The surface area of a single size 2 Marksman Poly-Fine II Series filter can exceed 60 ft² (5.6 m²). This is equivalent to over 6 conventional pleated filters but can hold up to 16 times the contaminant!



Marksman Poly-Fine XLD Filters

Marksman Poly-Fine XLD Series filters are eXtended Life Depth filters with a unique pleated depth configuration. The thicker, multi-layered pleat pack combines the best of pleated and depth technologies into one. The proprietary Gel Guard media incorporated into the Marksman Poly-Fine XLD Series make them ideal for applications where the long life of a pleated filter is desired, but the presence of deformable particles requires the use of depth media. One size 2 Marksman Poly-Fine XLD Series filter has the flow capability of approximately 15 standard 10" (25.4 cm) Marksman Poly-Fine XLD filters, due to the high surface area and the elimination of the flow restricting center core.

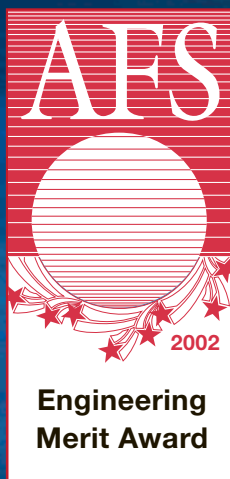


Marksman Nexis A Filters

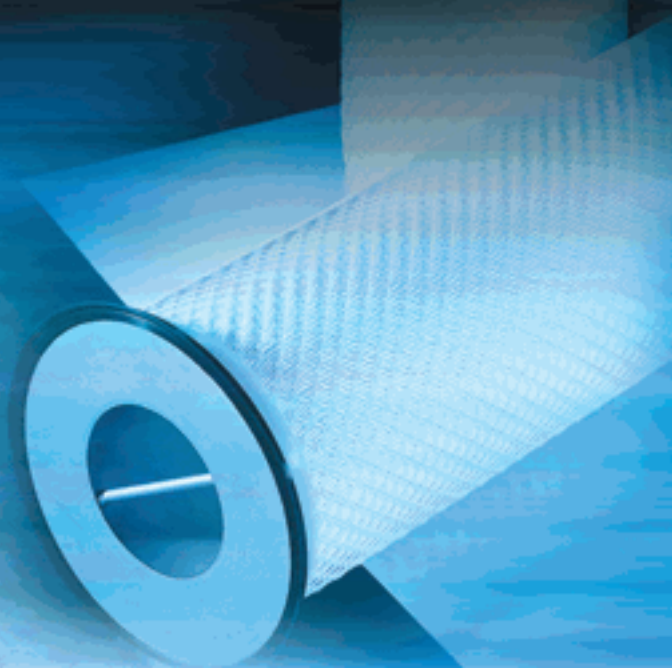
Marksman Nexis A Series filters deliver all the performance advantages of Pall's proprietary CoLD fiber technology. The unique Co-located Large Diameter fiber construction produces a fiber matrix with excellent structural integrity to assure that the media does not shift, compress or unload captured contaminant. The proprietary manufacturing process produces a melt blown depth filter with the most precise removal efficiencies, the greatest consistency and exceptional void volume for high contaminant holding capacity.

An additional, very important benefit of the inside-out flow configuration is that now the finest filtration zone is on the outside of the filter and so is the zone with the greatest surface area. Compare the 6" (15.2 cm) diameter final filtration layer in a Marksman Nexis A filter to the 1" diameter final filter zone in a standard 2.5" (6.4 cm) diameter Marksman Nexis A filter and you will realize that the Marksman Nexis A filter configuration delivers a significant performance advantage.





The American
Filtration Society
Users Committee
Selected The
Marksman Series Filter
Element For Its 2002
Engineering Merit
Award.



Marksman Series Housings and Applications



Marksman Series Housings

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

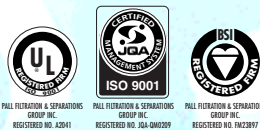
The 316L stainless steel Marksman housings are available in two sizes to accommodate Size 1 or Size 2 Marksman filters. Single and multi cartridge housings, code and non-code designs are offered. Specially engineered vessels are also possible.

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.

All Marksman housings are sized to optimize the dirt holding capacity of the filter element. Depend on Pall to deliver the best filtration solution that also results in the lowest total filtration cost.

Marksman Filter Applications

Chemicals:	Intermediates and fine chemicals
Water:	Make-up, rinse, pre-RO, process cooling
Well Injection:	Completion fluids, secondary water, flood workover
Coatings:	Automotive paints, inks, CD/DVD, magnetic media
Electronics:	Pre-RO, process cooling water, wastewater
Food & Beverage:	Soft drink make-up water, corn syrup, vegetable oils, DE or carbon trap, sweeteners
Photographic:	Photo chemicals, photoemulsions, dyes
Petrochemical:	Amines
Other:	Catalyst recovery, plating baths, glycerine compounds



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Pall Corporation has offices and plants throughout the world in locations including: Argentina, Australia, Austria, Belgium, Brazil, Canada, China, France, Germany, Hong Kong, India, Indonesia, Ireland, Italy, Japan, Korea, Malaysia, Mexico, the Netherlands, New Zealand, Norway, Poland, Puerto Rico, Russia, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, United Kingdom, United States, and Venezuela. Distributors are located in all major industrial areas of the world.