

Harmsco® Liquid Filtration Solutions

HARMSCO® PATENTED UPFLOW FILTRATION PROCESS

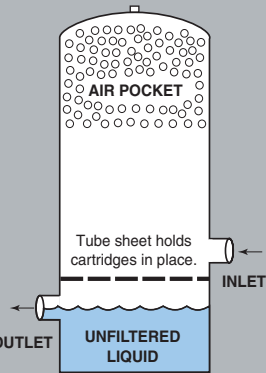
Conventional Cartridge Filter Design

Potential for air entrapment

With outlets located **below** inlets, air travels upward so vents are needed to expel air that can accumulate within the filter vessel during operation.

Potential for by-pass

With outlets located **below** inlets, by-pass can occur as unfiltered liquid drains downward to the sump while the cartridges are removed. This may result in by-pass when the filter is put back into service.



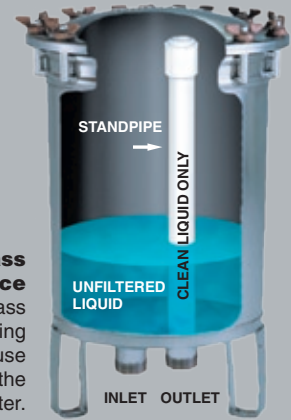
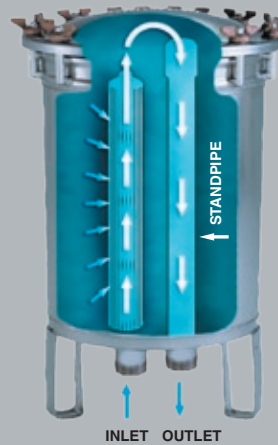
Harmsco® Up-flow Cartridge Filter

No air entrapment

Air is self purged from Harmsco Up-Flow filters because outlets (top of standpipes) are at the high point of the filters.

No by-pass during service

No liquid can by-pass Harmsco filters during servicing because standpipes are the "clean side" of the filter.



A HISTORY IN PROGRESS

Inventor John Harms and his wife Laura founded Harmsco®, Inc. in 1958. Their mission was to design and manufacture high quality filtration equipment and market their product line worldwide.

Almost 50 years later, Harmsco® brand filtration products are recognized around the globe and respected by the leading experts in the filtration industry.

With over 180,000 square feet of manufacturing space in West Palm Beach and Lake Wales, Florida, Harmsco® is prepared to meet the increasing global demands for liquid filtration.

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Harmsco® Filtration Products



HARMSCO® TODAY...

Harmsco® is a leader in providing solutions to liquid filtration challenges.

Whether it is industrial, swimming pool or custom product applications, Harmsco® is focused on delivering innovative and cost-effective approaches to filtration.

The foundation of Harmsco® begins with its commitment to excellence and focus on providing quality, value and service.

When it comes to price and performance, your best solution for liquid filtration challenges is Harmsco® Filtration Products.

HARMSCO® HIGHLIGHTS

- ◆ **March 1973**
 - Upflow Cartridge Filter Application (Pat. no. 3,720,322)
- ◆ **February 1980**
 - Electrically grounded filter plate (Pat. no. 4,187,179)
- ◆ **June 1984**
 - Combination Filter/Heat Exchanger (Pat. no. 4,455,227)
- ◆ **December 1985**
 - End connected filter cartridges (Pat. no. 4,559,138)
 - Single Cartridge Filter (Pat. no. 4,561,979)
- ◆ **December 1992**
 - Filter System utilizing rotational flow and method for making slanted pleats (Pat. no. 5,174,896)
- ◆ **March 1993**
 - Filtering System utilizing rotational flow and dual chamber (Pat. no. 5,196,119)
- ◆ **May 1994**
 - Pleated Filtering Sleeve for rotational flow filtering systems (Pat. no. 5,316,677)
- ◆ **April 2001**
 - Additional 80,000 sq. ft. production facility opens in Lake Wales, Florida
 - Introduction of the SureSafe™ filter cartridge.
- ◆ **March 2004**
 - Introduction of Band Clamp Filters and Bag Filter Housings
- ◆ **January 2006**
 - Introduction of Swing Bolt High Performance Hurricane Cartridge Filter Housings, ASME design