



**Harmsco®  
Filtration Products**

# PRODUCT APPLICATION GUIDE

## *Liquid Filtration Solutions*



# Innovation in Liquid Filtration



## Filter Housings

- 304 Stainless Steel
- Patented Up Flow Cartridge Filtration
- Centrifugal Separator
- Electro Polished For Superior Finish
- Fail-Safe Lids With Individual Studs for Security
- Resistant Coating Available
- NSF certified on Many Housings



Certified to  
ANSI/NSF 61



## Cartridge Filters

- Pleated Design for Low Pressure Drop
- Increased Filter Area
- Longer Filtration Runs
- Able to clean and reuse in most applications
- Color Coded End Caps Identify Micron Ratings
- FDA Listed Materials for Drinking Water, Beverages and Liquid Food Applications
- NSF certified on Many Cartridges



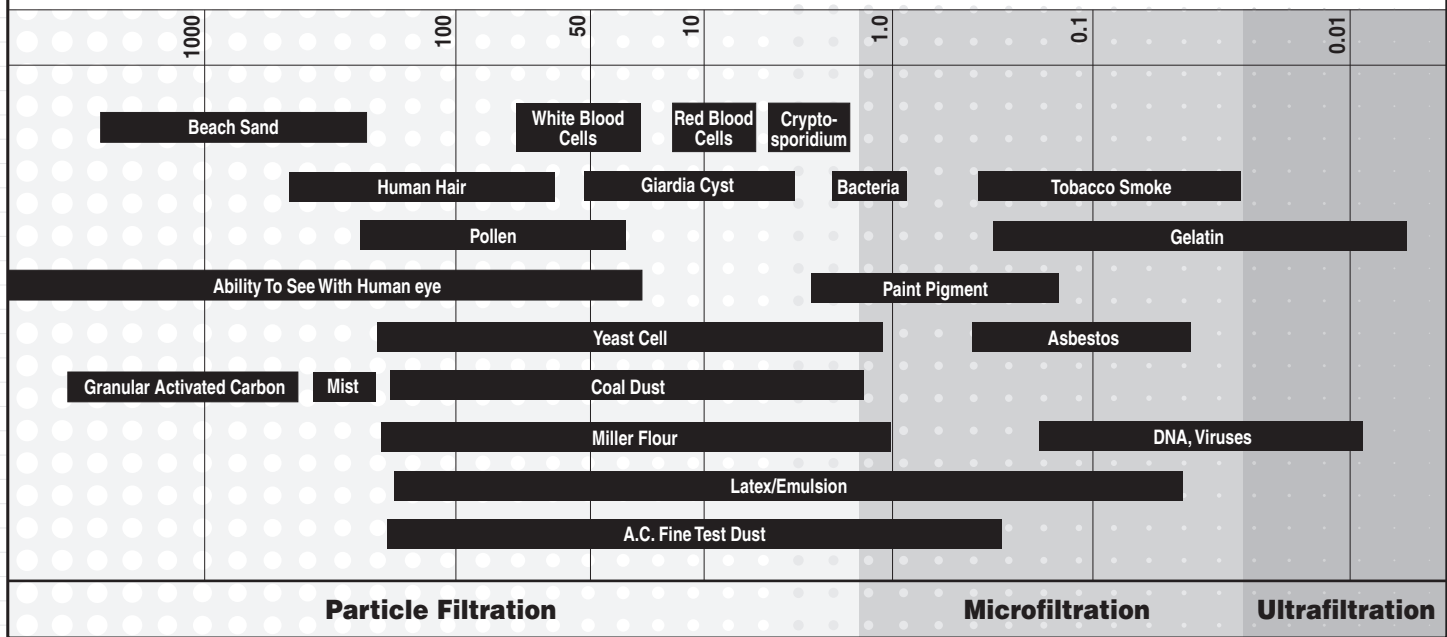
## Residential Filtration

Harmsco whole house filters & point-of-use filters are ideal for the following applications:

- Municipal water filtration for removing sediment, chlorine, tastes and odors
- Well water filtration to remove sediment & oxidized iron
- Filtration of surface waters for Cryptosporidium & Giardia Cyst bacteria removal
- Protects your whole house at the Point-Of-Use (POU) or Point-Of-Entry
- NSF certified on replacement cartridges

# FILTRATION REFERENCE GUIDE

## Filtration Separation Using Common Materials (Micrometers Scale)



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# Higher Dirt Holding Capacity

**Compare Harmsco® Pleated Cartridges to the Competition!**

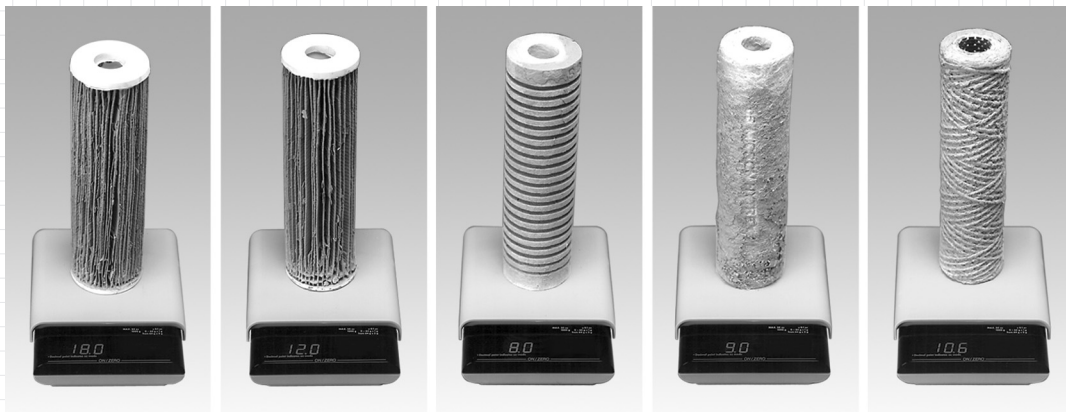
### Proven Performance

- Higher Dirt Holding Capacity
- Higher Throughput
- Cleanable and Reusable\*

Laboratory testing using AC Coarse Test Dust demonstrate the superior performance of Harmsco® pleated filter cartridges.



Certified to  
ANSI/NSF 61



**HARMSCO®  
"801"**

**HARMSCO®  
WaterBetter**

**Resin Bonded  
Cellulose**

**Spun  
Polypropylene**

**String  
Wound**

Solids removed (oz.)	12.0	7.0	3.3	2.5	2.1
Minutes to achieve 30 psip	16.8	11.08	2.8	1.97	1.33
Cleanable & Reusable?	Yes	Yes	No	No	No

Tests conducted with coarse test dust and 3% solids using 5 micron cartridges. Filtration was terminated when each cartridge reached a 30 psi pressure differential. Cartridges were weighed dry before and after filtration tests to determine solids removed. \*Harmsco® pleated filter cartridge products are cleanable and reusable in most applications (5 micron & Higher)



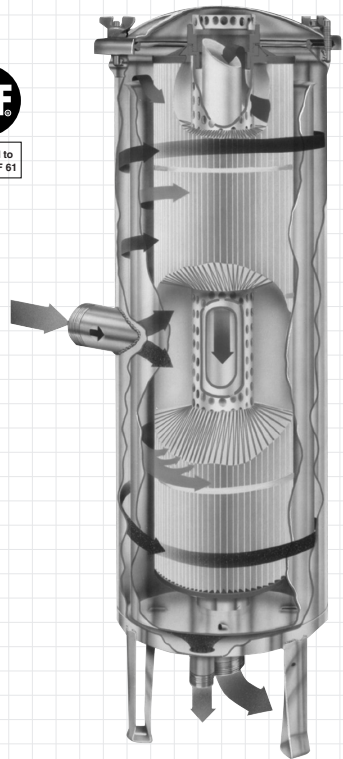
## 2 Filters in 1!

### ***More than Doubles the Performance of any Comparable Filter!***

***Combining 2 proven technologies, cartridge filtration and cyclone separation,  
into one new technology, angled pleats...***

***Harmsco® has created a line of industrial filters that is the benchmark of  
liquid filtration.***

- Plumbing is simple, with a minimum of head loss, into a tangential inlet nipple.
- Liquids flow rotationally causing the larger particulate to fall to the bottom of the outer chamber - efficiently acting as a prefilter.
- As the flow orbits the cartridge, it continuously flutters the angled pleats, distributing debris evenly over 100% of the media, thus eliminating blind spots.
- This combined technology results in a cartridge that requires 1/3 less cleanings than conventional cartridges of the same size. Available in 40, 90, and 170 square foot cartridges.  
Micron ratings from 0.35m to 150m including 1m Poly-Pleat™ for Cryptosporidium & Giardia and our unique carbon block center cartridge with pleated outer wrap.



## **Harmsco® Up-Flow Filtration** *So superior it's patented!*

**Up-Flow Design** - Patented design provides superior performance.

**No By-pass During Servicing** - Top of standpipe (outlet) extends above filter housing to separate non-filtered fluids from filtered fluids so by-pass during servicing is not possible.

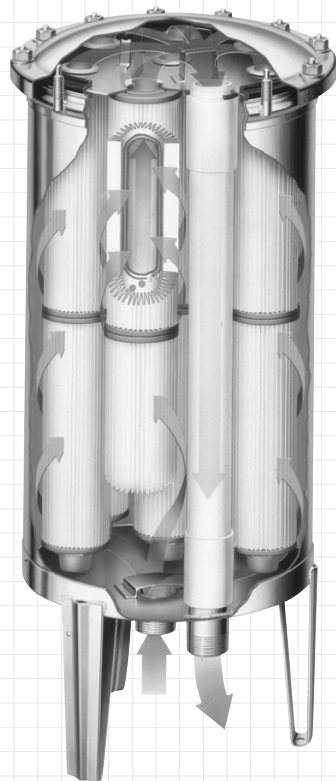
**Self-purging** - With up-flow filtration, air passes through the filter and cannot accumulate at its top. This provides assurance 100% of the media is used 100% of the time. The need for venting is also eliminated.

**Cartridges Easily removed** - Cartridges are arranged in a cluster with our smaller filters so all cartridges are removed at one time for quick and easy replacement. Lifting rods come with our larger vessels to remove several cartridges at a time for faster servicing.

**Rated for Pressures up to 150 PSI** - Filters designed for use in both low and high pressure applications.

**T-304 Stainless Steel Standard on all models!** - Increased durability and resistance to corrosion.

**Fail Safe Lids for Maximum Safety** - Lids have individual studs for maximum safety. No v-bands or need to shroud filters for security. Lid rim directs fluids downward in the event of gasket failure. Wing nuts or hex brass nuts provided.



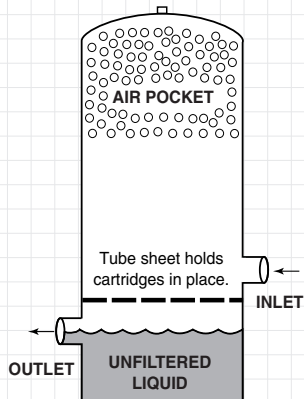


# Harmsco® Patented Upflow Filtration Process

## Conventional Cartridge Filter Design

### Potential for air entrapment

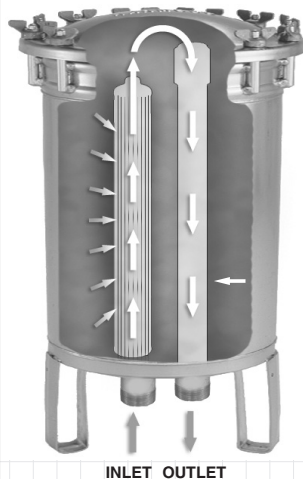
With outlets located **below** inlets, air travels upward so vents are needed to expel air that can accumulate within the filter vessel during operation.



### 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

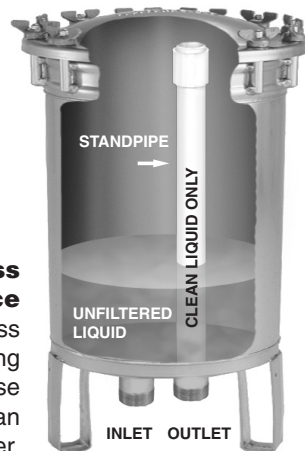


### No air entrapment

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.



**Patented Upflow  
Filtration**

## ***Residential Point of Use***

Although Municipal water supplies are safe and generally meet water quality standards, drinking and cooking water may not be aesthetically appealing to the homeowner. Additionally, many homeowners are looking for a higher

level of protection from all points of use (shower, ice maker, etc). Under sink, "point of use" filters are the traditional products of choice. High efficiency and carbon filters meet or exceed these requirements.

### ***Harmsco® Single Filter Cartridge Filter Housings***

- High quality molded polypropylene for single and double lengths in 2 3/4" and 4 1/2" diameters
- Stainless steel available in single and double length for 2 3/4" diameter cartridges

### ***Harmsco® Filter Cartridges***

- Manufactured with high efficiency, high performance, high capacity, Polyester-Plus™ filter media. NSF Certified
- Harmsco® Poly-Pleat™ challenged to ANSI/NSF 61 for the removal of *cryptosporidium* and *giardia*
- Activated carbon in "wet molded" and carbon block for chlorine, taste, odor, and lead removal. NSF Certified ANSI/NSF 42



Certified to ANSI/NSF 61 for material content

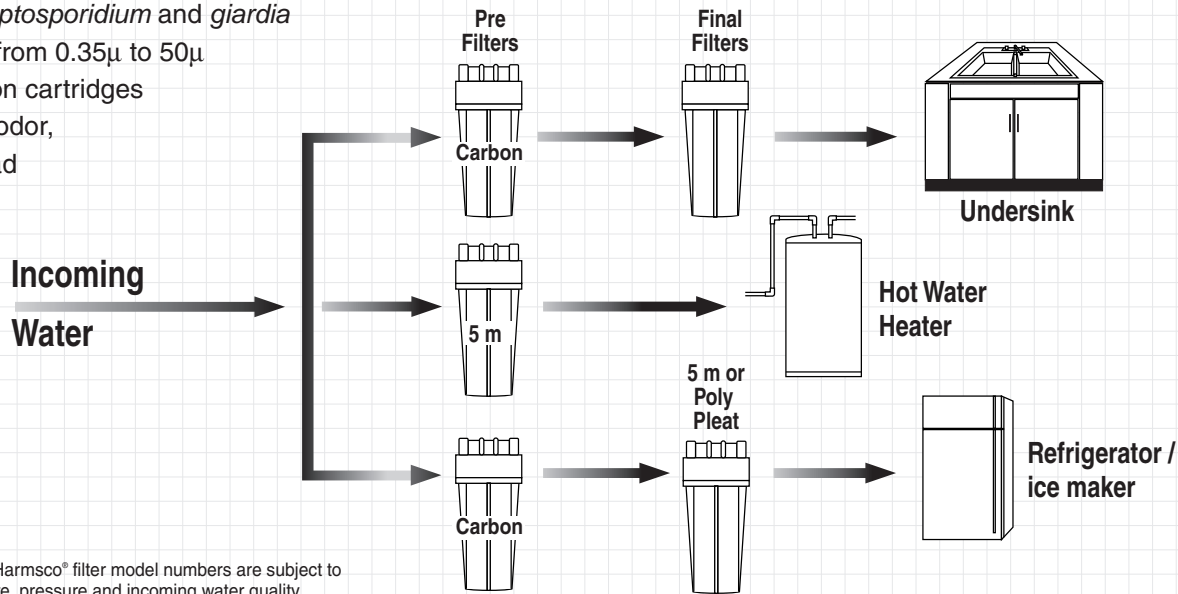




# Point of Use

## Quick Specs:

- Filter housings manufactured of stainless steel or molded polypropylene
- Poly-Pleat™ filter cartridges manufactured of Polyester-Plus™ filter media.
- Removal of *cryptosporidium* and *giardia*
- Micron ratings from 0.35μ to 50μ
- Activated carbon cartridges
- Improve taste, odor, and remove lead



**NOTE:** Final design and specific Harmsco® filter model numbers are subject to variables such as flow, temperature, pressure and incoming water quality

**Residential Point  
of Use**

Potable water supplies carry a myriad of contaminants in many forms. Whether supplied by a municipality or a private well, these impurities may: be a known problem, pose no threat, be a minor inconvenience, or a homeowner may want water that is much cleaner and more aesthetically pleasing.

### Harmsco® Whole House Single Cartridge Filters

- Cartridge filtration for the removal of: harmful bacteria such as *cryptosporidium* and *giardia*, taste and odor, sediment for improved clarity, chlorine and other problem contaminants
- Manufactured of 304 stainless steel for many years of reliable service
- Makes undersink and refrigerator filters unnecessary



Simple, Single Cartridge Design



High Capacity Combination Activated Carbon Block with 5 Micron Pleated Pre-filter

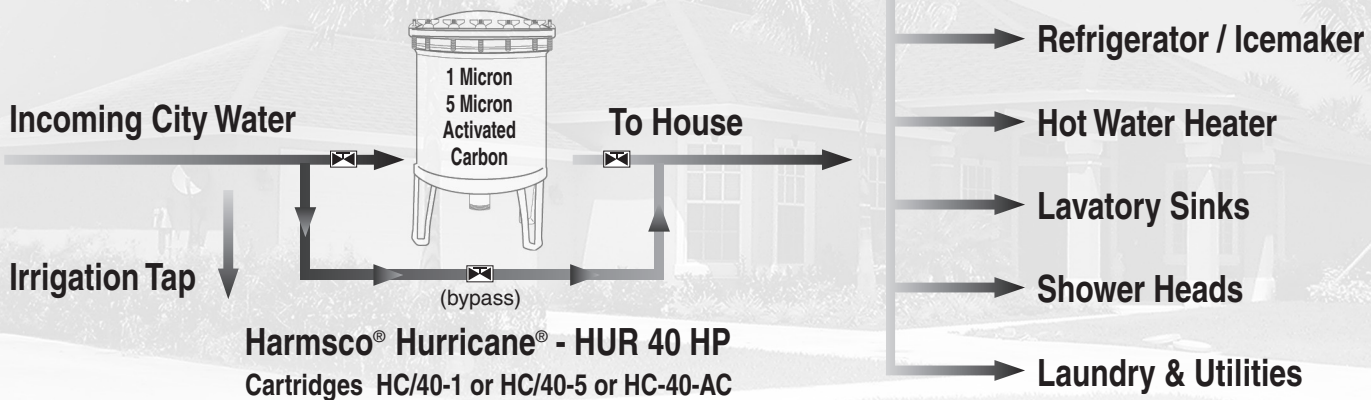
## NSF Certified cartridges available:

- 0.35 microns to 150 microns
- Harmsco® Poly-Pleat™ 1 micron absolute for cryptosporidium and giardia
- Combination activated carbon block (3 lbs.!) with 5 micron pleated Polyester Plus™ filter media



Certified to ANSI/NSF 61  
for material content

## One Filter Covers it All!



## ***Apartments, Condominiums, Hotels***

Water quality in Apartments, Condominiums, and Hotels is subject to their municipal water supply. Many times the residents and building owners require additional filtration for the water supplied to the various units, enhancing the water quality for additional clarity, aesthetics such as taste and odor, or if located in a region where water quality may be questionable, increased resident safety. Harmsco® filtration manufactures products to meet these requirements and

Harmsco® products eliminate the need for multiple, "point of use" filters throughout the individual units.

### ***Harmsco® 304 Stainless Steel Filter Housings***

- Flow rates to 800 gpm/per housing
- Electropolished 304 stainless steel for durability and long life
- Available in multiple cartridge and high capacity single cartridge designs
- Pressure rated to 150 psi (ASME available on some models)

products specifically manufactured for the removal of *cryptosporidium* and *giardia*. By installing filtration systems to handle the entire building, a series of floors in the building, single floor, or penthouse, the building manager can provide a higher quality water and minimize service, while providing an economical alternative to a multitude of "point of use" filters in each unit.

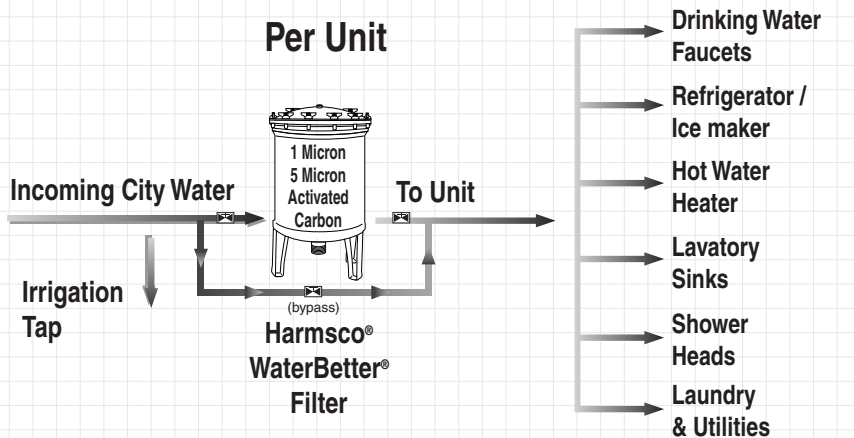


## Harmsco® Filter Cartridges

- NSF certified filter cartridges
- Engineered Polyester-Plus™ filter media
- Micron ratings from 0.35µ to 150µ including Harmsco's PolyPleat™ engineered filter media for *cryptosporidium* and *giardia* removal
- Unique combination activated block filters with pleated polyester media with up to 10 lbs of carbon in a single cartridge

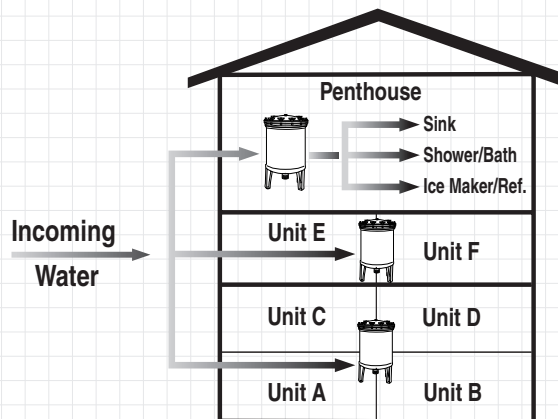


### Per Unit



**NOTE:** Final design and specific Harmsco® filter model numbers are subject to variables such as flow, temperature, pressure and incoming water quality

### Multiple Unit (size for # of units to be covered)



**Apartments,  
Condominiums, Hotels**

# Water Supply Systems for: Community Water Supply, Parks, Small Municipalities

Safe, clean drinking water is a basic need for every person, whether it is a private community well, City, Township, or State water supply system. Successful systems will economically provide potable water free of such contaminants such as sediment, or illness causing bacterium such as *cryptosporidium*, and *giardia*.

- Harmsco® filter cartridges and most filter housings are NSF 61 certified.
- Patented Hurricane® filter housings combine centrifugal separation with cartridge filtration for economical pre filtration
- Harmsco® filter cartridges are available in nominal micron ratings from 0.35 to 150 microns for "perfect fit" pre and final filtration systems.
- Filter housing provide flow rates to over 1.1 million gallons a day without the need for parallel systems.
- Harmsco® Hurricane® technology is already accepted by many State and Municipal agencies.

Whether your source water is from a lake, river, pond, or from a well, Harmsco® has successful, proven technology to satisfy this basic human need. Third party testing and analysis have shown that the Harmsco® Poly-Pleat™ cartridges achieve the 3-log reduction of *cryptosporidium* and *giardia* as required by NSF 53 standards.





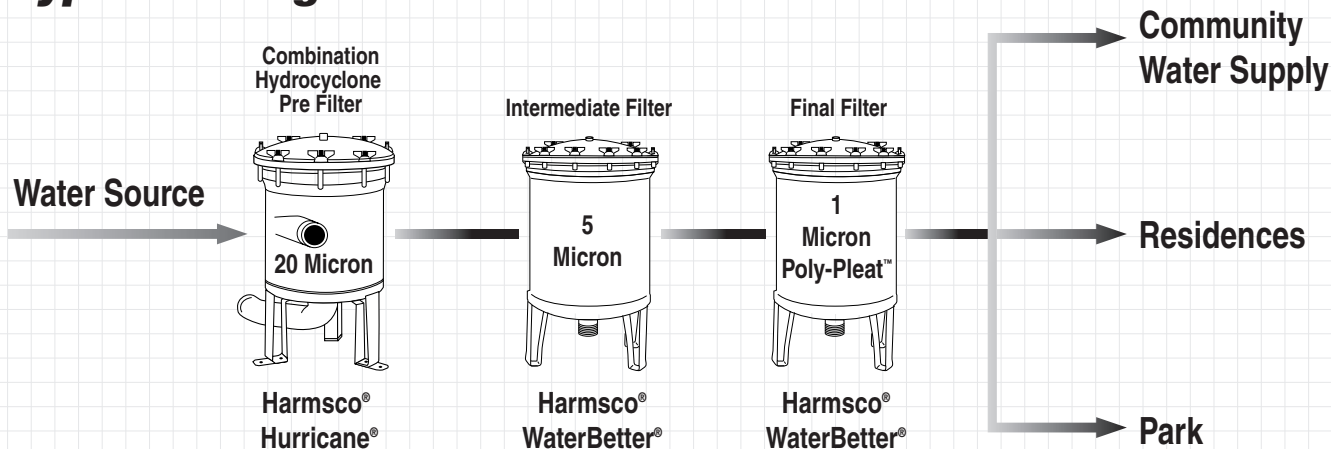
### Quick Specs:

- Flow rates of 40 gpm up to 800 gpm
- Harmsco® Hurricane® filter housings and cartridges NSF 61 Certified
- Electropolished 304 stainless steel filter housings - standard



Certified to  
ANSI/NSF 61

## Typical Design



**NOTE:** Representative drawing only - Final design and specific Harmsco filter model numbers are subject to variables such as flow, temperature and incoming water quality.

### ***Industrial Wastewater Treatment***

Industrial wastewater treatment systems usually require a combination of fluid treatment technologies. The combination of chemical, physical, and mechanical filtration processes are site specific to the industry and the

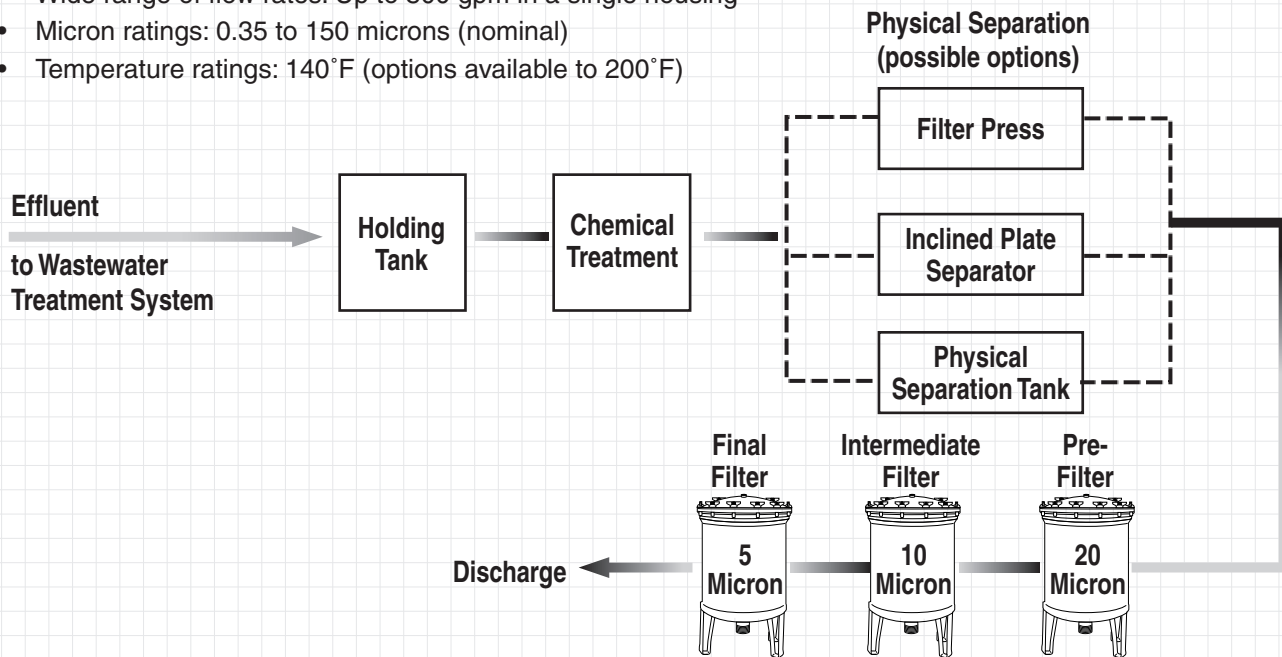
processes within a given facility. Chemical treatment changes the properties of the fluid to allow physical and mechanical devices to remove and separate suspended particles and contaminants that can not be discharged.

- Harmsco® Filter Housings are manufactured of electropolished 304 stainless steel for a wide range of chemical resistance and long life
- Harmsco® engineered Polyester-Plus™ is designed for long life with a wide range of chemical compatibility and micron ratings



### Quick Specs:

- Wide range of flow rates. Up to 800 gpm in a single housing
- Micron ratings: 0.35 to 150 microns (nominal)
- Temperature ratings: 140°F (options available to 200°F)



**NOTE:** Representative drawing only - Final design and specific Harmsco filter model numbers are subject to variables such as flow, temperature, pressure and regulatory discharge limits.

## Cooling Towers

Process cooling loops and climate control through the use of cooling towers is a tried and true technology found throughout the world. The efficiency of this technology is directly related to the cleanliness of the towers and the fluids that run through them. The water treatment industry adds various chemicals for biological control, corrosion

control, scale control and other control agents. By combining chemical control strategies with filtration, heat transfer efficiencies are maximized, significantly lowering overall operating and energy costs. Filtration helps keep the tower cascade systems, sumps and other internal heat exchange surfaces clean.

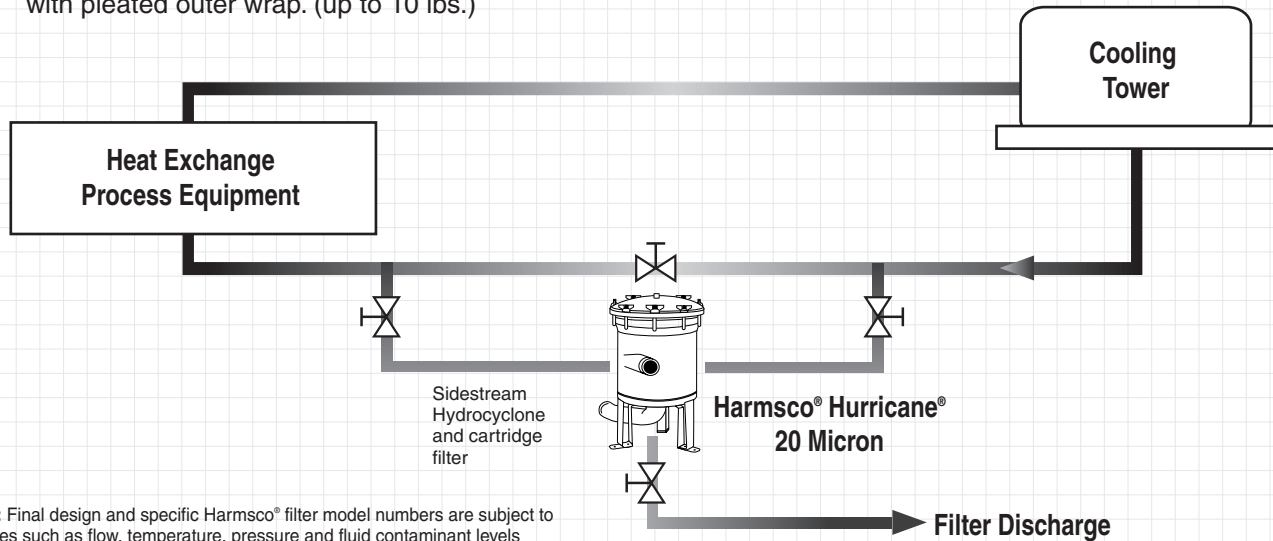
### **Harmsco® Hurricane® Series Technology**

- Combines centrifugal separation with cartridge filtration for long run time.
- Centrifugal separation removes larger particles such as scale and rust prior to cartridge filtration.
- 304 stainless steel construction for a broad range of chemical compatibilities.
- Smaller footprint and much lighter in weight than sand filters and no need for a second unit to support extended backwash time.
- Harmsco® filter cartridges are washable and re-usable in most applications for additional cost savings.



### Quick Specs:

- Sidestream filtration can be designed at 10-15% of full cooling tower system flow
- 3 flow rate sizes - 50 gpm, 100 gpm and 150 gpm
- 10 high capacity single cartridge choices with up to 170 sq. ft. of surface area in a single cartridge.  
Nominal micron ratings available from 0.35 to 150 microns including our unique carbon block center with pleated outer wrap. (up to 10 lbs.)



**NOTE:** Final design and specific Harmsco® filter model numbers are subject to variables such as flow, temperature, pressure and fluid contaminant levels

## ***Plating Baths and Tanks***

The quality of products processed through electro-plating and electro-less plating tanks can be significantly improved through filtration. Filtration of the various stages of the plating process can help to achieve: better plating, reduction of rejects, conservation of chemicals, reduction

of waste treatment costs, and result in lower cost to produce high quality parts. Through mechanical filtration you can keep particulate contamination under control, plus carbon filtration minimizes organics. Special coatings also available for corrosion resistance.

### ***Harmsco® Electro-polished 304 stainless steel filter housings***

- Available in many flow rates to achieve the flow rates you need
- Electropolished 304 stainless steel for wide chemical compatibilities
- Multiple cartridge and single cartridge designs

### ***Harmsco® Single Filter Cartridge Filter Housings***

- High quality molded polypropylene for single and double cartridge lengths in 2 3/4" and 4 1/2" diameters
- Stainless steel available in single and double length for 2 3/4" diameter cartridges

### ***Harmsco® Filter Cartridges***

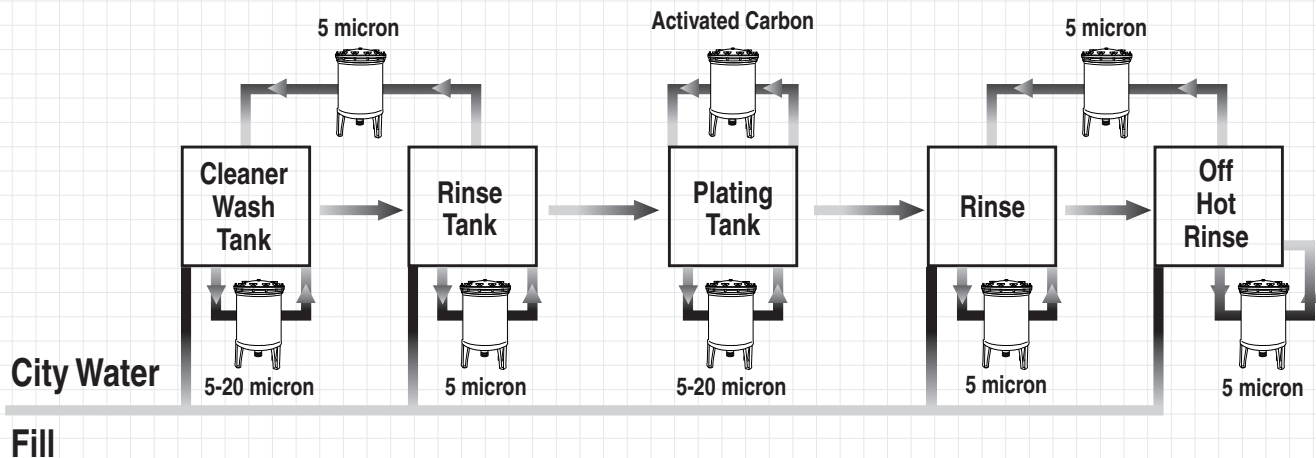
- Manufactured with high efficiency, high performance, high capacity, Polyester-Plus™ filter media for wide range chemical compatibility
- Activated carbon in "wet molded" and carbon block





### Quick Specs:

- Filter housings manufactured of stainless steel or molded polypropylene
- Nominal micron ratings from 0.35 $\mu$  to 150 $\mu$
- Temperature - 140°F (option available to 250°F)



**NOTE:** Representative drawing only - Final design and specific Harmsco® filter model numbers are subject to variables such as flow, temperature, pressure and incoming fluid quality.

### Plating Bath & Tanks

# Spray and Fog Nozzle Protection

Fluid cleanliness is a key to spray and fog nozzle performance. Today's nozzles are so fine that particles less than the thickness of a human hair will clog the nozzle orifices. Clogging leads to deviations in spray patterns and the worst case scenario is no spray at all. Spray header and fog machine nozzle orifice size and

designs have very close tolerances that make the difference in a system that works or not. High efficiency filtration of the supply liquid is the best way to keep particles from compromising your system.

### **Harmsco® 304 Stainless Steel Filter Housings**

- Flow rates to 800 gpm
- Electropolished 304 stainless steel for durability and long life
- Available in multiple cartridge and high capacity single cartridge designs
- Pressure rated to 150 psi (ASME available on many models)

### **Harmsco® Single Filter Housings**

- High quality molded polypropylene
- Opaque and clear bowls available
- Available in single and double filter cartridge lengths in 2 3/4" and 4 1/2" diameter
- Stainless steel available in single and double lengths for 2 3/4" filter cartridges

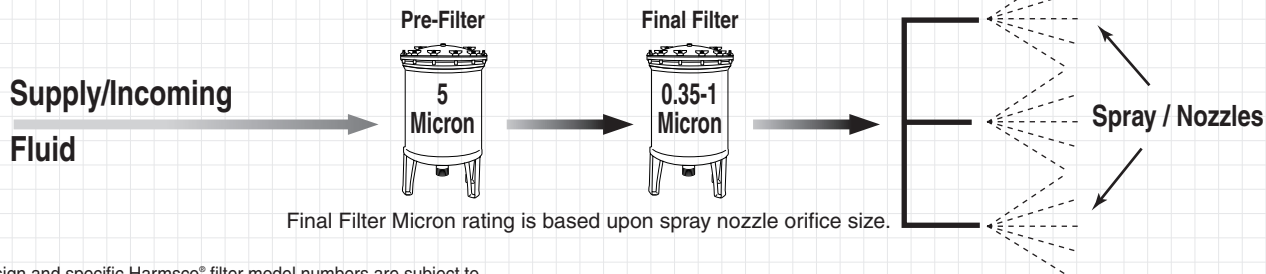
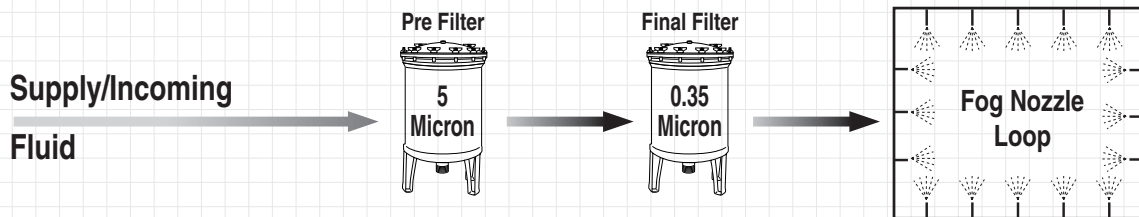
### **Harmsco® Filter Cartridges**

- Manufactured with high efficiency, high performance, high capacity, Polyester-Plus™ filter media for wide range chemical compatibility
- Polyester-Plus™ filter media available in micron ratings from 0.35µ to 150µ



### Quick Specs:

- Filter housings manufactured from electropolished 304 stainless steel or high quality polypropylene
- Filter cartridges available in micron ratings from 0.35 $\mu$  to 150 $\mu$
- Flow rates from less than 5 gpm to 800 gpm per filter housing



Final Filter Micron rating is based upon spray nozzle orifice size.

**NOTE:** Final design and specific Harmsco® filter model numbers are subject to variables such as flow, temperature, pressure and incoming water quality

**Spray and Fog Nozzle  
Protection**

### Parts Washing, Multi-Stage Washing and Rinse Operation

Manufacturing and fabrication operations include the washing, rinsing and surface preparation of detail components and finished goods. For quality parts to be ready for further production such as assembly, metal finishing or painting, the product must be contaminant free. This is usually accomplished with multi-staged washers that have cleaning, rinsing and many times include corrosion resistance chemical dip or spray tanks. Filtration is the obvious choice for maintaining fluid quality, maximizing

performance, and extending fluid life. When fluid contaminant levels are controlled, higher quality product is moved to next step, product rework and rejects are minimized, fluid life is longer resulting in lower chemical costs, and maintenance and downtime due to clogged nozzles and tank cleaning is reduced. Fewer fluid discharges mean reduced environmental issues and disposal costs.

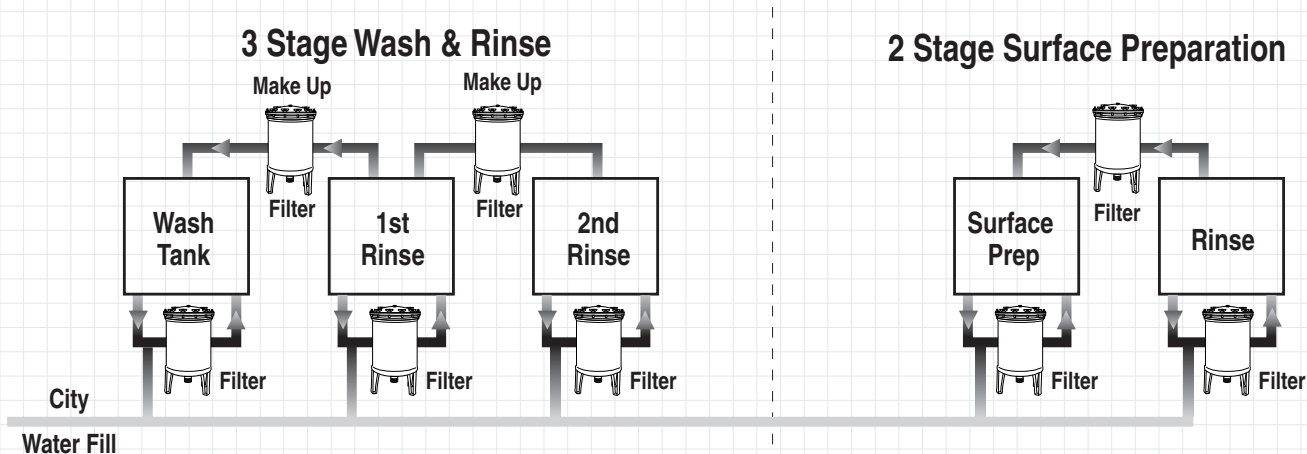
#### ***Harmsco® Product Features and Benefits***

- Harmsco® engineered Polyester-Plus™ filter media is designed for wide ranges of chemical compatibility and are available in nominal micron ratings from 0.35 $\mu$  to 150 $\mu$  to achieve your desired fluid cleanliness levels
- High surface area filter cartridges for long life and superior performance



### Quick Specs:

- Wide range of flow rates: 5 to 800 gpm
- Standard product temperature rating: 140°F (options available to 250°F)
- Filter housings manufactured of: Electro-polished 304 stainless steel or polypropylene
- Engineered Polyester-Plus™ filter media



**Note:** Plumb filters in recirculation lines or spray headers as appropriate

**NOTE:** Representative drawing only - Final design and specific Harmsco® filter model numbers are subject to variables such as flow, temperature and incoming fluid quality

## Spring Water Bottling

Natural spring water is nature's finest tasting water and each spring water source has its own unique mix of minerals. Chemical treatment and reverse osmosis can alter and strip the spring water minerals to change or remove the very characteristics that make the water so

special. By using Harmsco Filtration Products filter equipment, you provide clear water, and remove cryptosporidium and giardia without changing the unique features of your water.



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### Product Features and Benefits

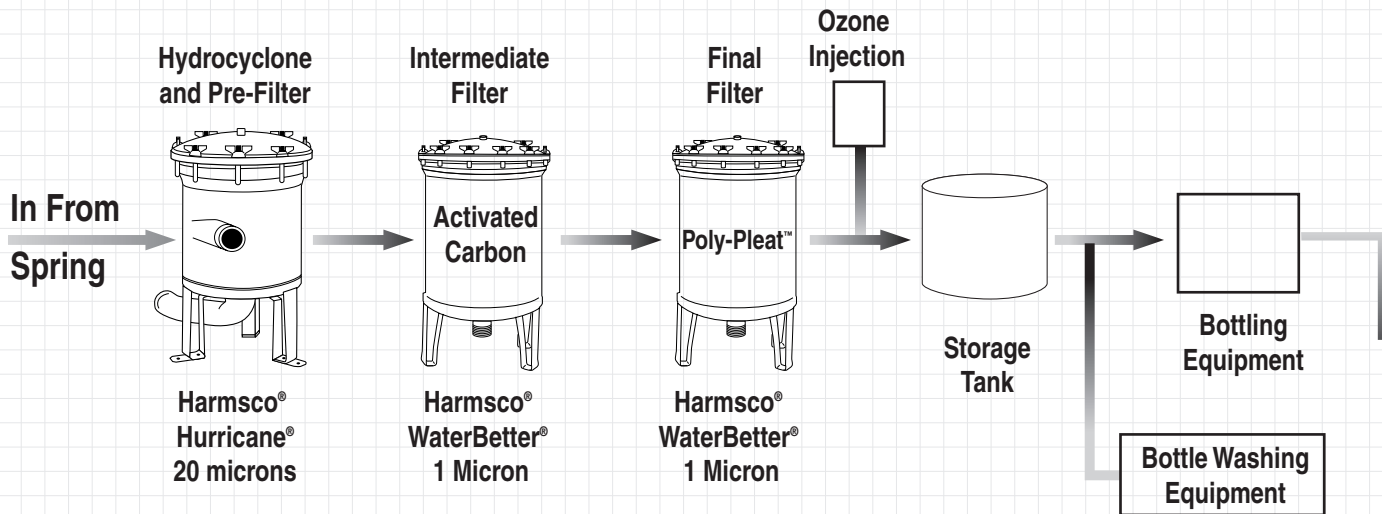
- All Harmsco® filter housings are manufactured of high quality 304 stainless steel.
- Harmsco® filter cartridges and most filter housings are NSF 61 certified.
- Harmsco's® Poly-Pleat™ has been challenged to NSF 53 and meets or exceeds the 3-log reduction requirements for *cryptosporidium* and *giardia*.
- Harmsco® filter cartridges are available in nominal micron ratings from 0.35 to 150 microns for "perfect fit" pre and final filtration systems.
- Single filter housing options provide flow rates to provide over 1.1 million gallons a day without the need for parallel systems.





### Quick Specs:

- Flow rates from 40 gpm to 800 gpm



**NOTE:** Final design and specific Harmsco® filter model numbers are subject to variables such as flow, temperature, pressure and incoming water quality

### ***Bottled Water***

Bottled water consumption has increased world wide for the past few years. Clear safe drinking water is in demand as never before. The Bottled Water Industry (as opposed to Spring Water Industry) uses natural as well as municipal water for production. These facilities typically filter the water

through many processes including reverse osmosis, which removes the contaminants and organisms including dissolved minerals. Prefiltration to the reverse osmosis equipment and bottle washing are applications that Harmsco® Filtration Products provide.

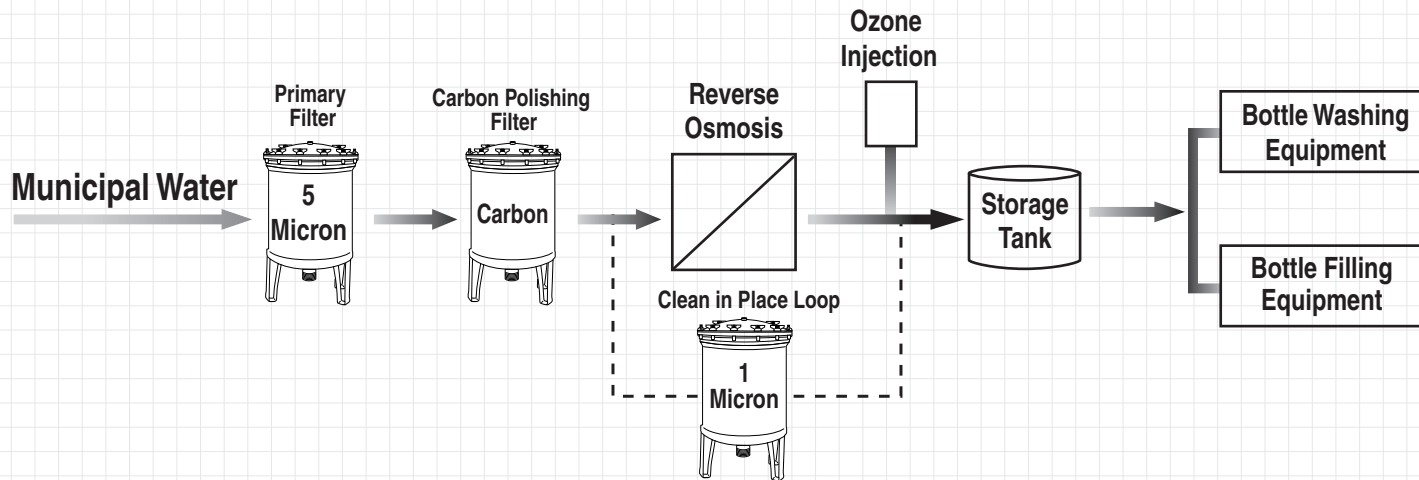
#### ***Product Features and Benefits***

- All Harmsco® filter housings are manufactured of high quality electro-polished 304 stainless steel
- Harmsco® filter cartridges and most filter housings are NSF 61 certified
- Filter housing selections provide flow rates to provide over 1.1 million gallons a day without the need for parallel systems



### **Quick Specs:**

- Filter cartridges available in micron ratings from 0.35 to 150
- Single cartridge filter media surface areas from 4 sq. ft. to 170 sq. ft.
- Polyester-Plus™ engineered high efficiency filter media
- Flow rates up to 800 gpm
- Pressure rating - 150 PSI



**NOTE:** Representative drawing only - Final design and specific model numbers are subject to variables such as incoming water quality, flow, temperature and pressure.

**Bottled Water**

## Wine

Wine production has as many production techniques as there are varieties of grapes. The basis to production involves not only clean process water, but varying degrees of filtration to achieve the Vintners clarity and color goals

while removing organisms such as yeast to avoid spoilage of final product. Many times there is a very fine line in protection from spoilage and maintaining the perfect color of a particular wine.

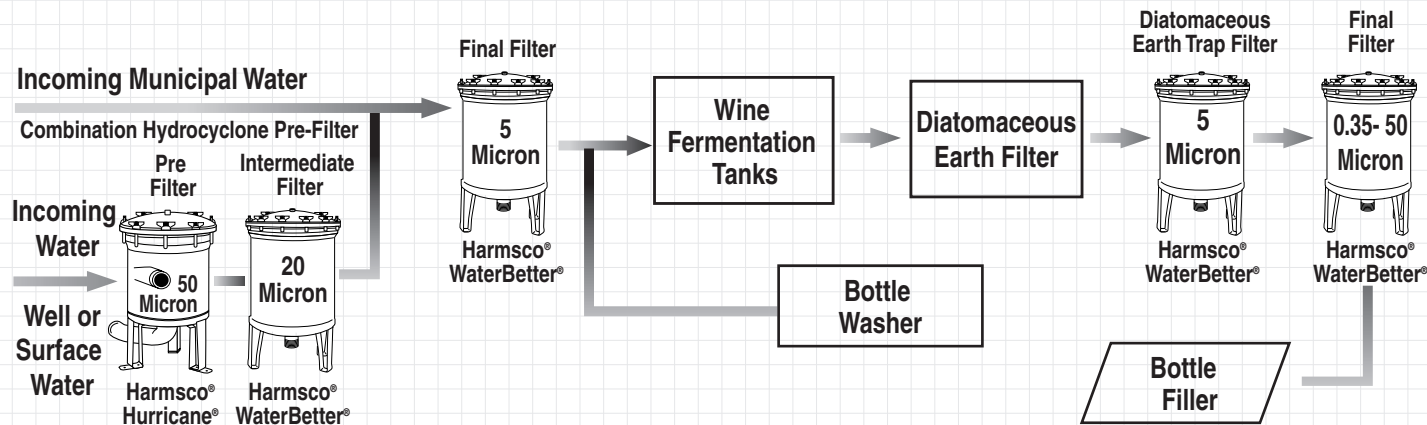
### ***Harmsco® Features and Benefits***

- All Harmsco® filter housings are manufactured of high quality electropolished 304 stainless steel
- Filter housing selections provide flow rates from less than 30 to 800 GPM - up to 1.1 MGD using only one filter housing!
- Harmsco® filter cartridges and most filter housings are NSF 61 certified
- High surface area filter cartridges for long life and superior performance



## Quick Specs:

- Filter cartridges available in nominal micron ratings from 0.35 to 150
- Single cartridge filter media surface areas from 4 sq. ft. to 170 sq. ft.
- Polyester-Plus™ engineered high efficiency filter media
- Filter housings are manufactured of electro-polished 304 stainless steel
- Flow Rates to 800 gpm, Pressure rating - 150 PSI, high temperature options to 200°F



**NOTE:** Representative drawing only - Final design and specific model numbers are subject to variables such as incoming water quality, flow, temperature and production requirements

Large scale Breweries as well as Microbreweries depend on vast amounts of water to make their beer. Beer production is a combination of centuries of tradition and new modern equipment that helps to standardize the final

product. The final product must remain consistent in taste, color and clarity. Each beer's unique character must be protected. Water contaminants, even if minimal, will make the final product unacceptable to the Brewmaster.

### ***Harmsco® Product Features and Benefits***

- All Harmsco® filter housings are manufactured of high quality electropolished 304 stainless steel
- Harmsco® filter cartridges and most filter housings are NSF 61 certified
- Filter housing selections provide flow rates of over 1.1 million gallons a day without the need for parallel systems
- High surface area filter cartridges for long life and superior performance



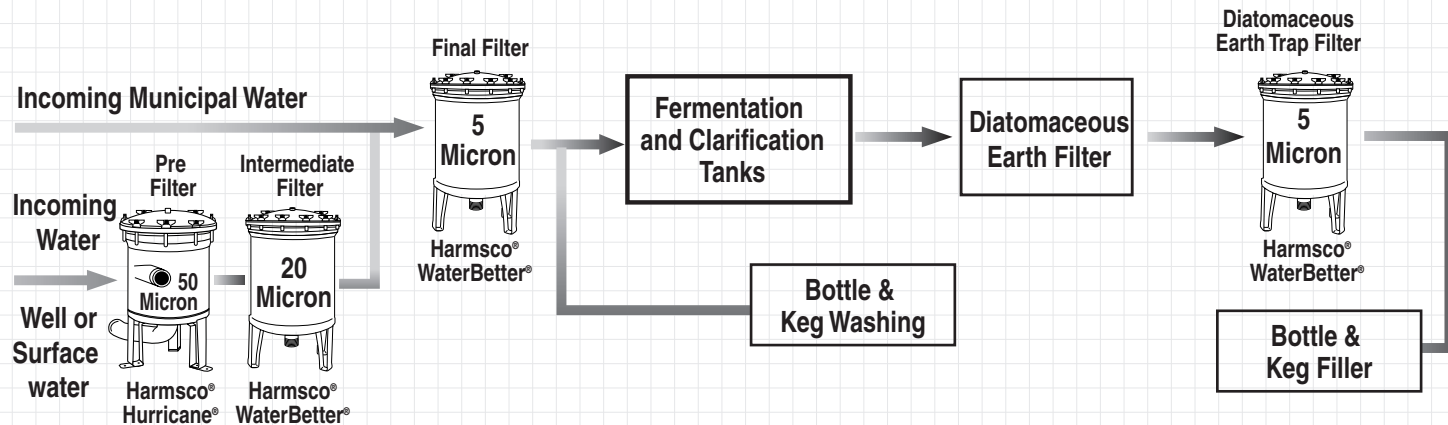
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ANSI/NSF 61





### Quick Specs:

- Filter cartridges available in nominal micron ratings from 0.35 to 150
- Single cartridge filter media surface areas from 4 sq. ft. to 170 sq. ft.
- Polyester-Plus™ engineered high efficiency filter media
- Filter housings are manufactured of electro-polished 304 stainless steel - standard
- Flow rates to 800 gpm, Pressure rating - 150 PSI, High temperature options to 250°F



**NOTE:** Representative drawing only - Final design and specific model numbers are subject to variables such as incoming water quality, flow, temperature, pressure and brewmaster requirements

**Beer**

Ultrapure water, including deionized water, is an important water process in many industrial settings. The manufacture of ultrapure water includes process steps that increasingly purify water and in some of the process steps may remove

contaminants but those technologies also risk adding contaminants. Mechanical products manufactured by Harmsco® Filtration Products fit these ultrapure filtration processes.

### ***Harmsco® Technology***

- Engineered Polyester-Plus™, polypropylene, or polyethersulfone filter media for the widest choice of micron ratings, high efficiency at rated size, and high dirt holding capacity
- Filter cartridges available from 0.2 micron absolute to 150 microns
- High surface area per cartridge for long life
- Standard electro-polished 304 stainless steel filter housings
- Patented Up-Flow and Hurricane® filter housing designs
- No cross contamination of clean and dirty fluids while changing filters

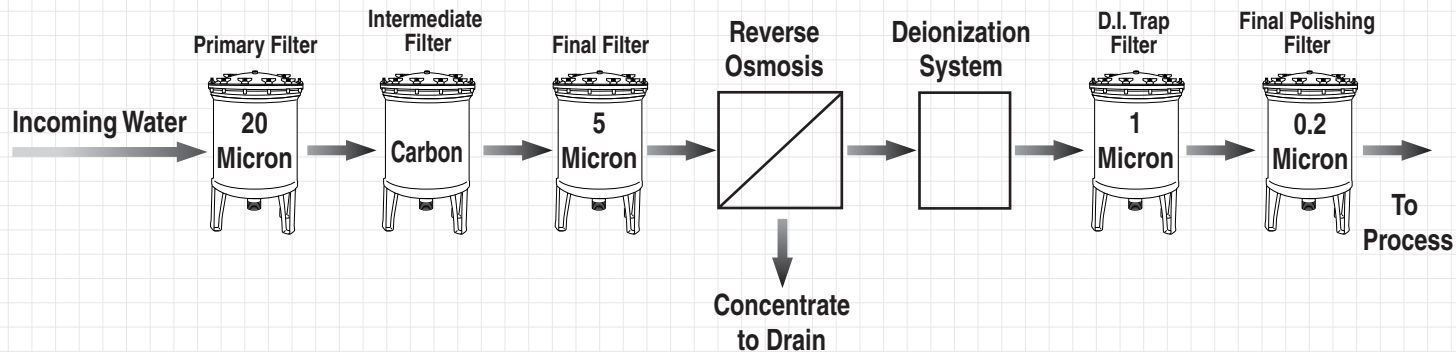


CERTIFIED



### **Quick Specs:**

- Electropolished 304 filter housings available in 222 X Flat configurations
- Single filter housings can accommodate flows up to 800 gpm



**Note:** Representative drawing only - Ultrapure Water designs and strategies vary greatly depending upon final water purity desired.  
Final design and specific model numbers are subject to variables such as incoming water quality, flow, temperature and production requirements

## ***Pre-Reverse Osmosis Membrane Filtration***

Reverse Osmosis and other membrane based advanced ultrapure fluid equipment is fully dependent upon efficient pre-filtration for efficient operation. Without adequate pre-filtration, membrane surfaces are exposed to damage and fouling. Damage to membranes results in premature replacement of very expensive membrane elements while

premature fouling means significant unscheduled downtime, repeated cleaning, short service life, and poor output. Consistent, high efficiency, high capacity pre-filtration combined with low pressure drops ensures membrane protection, high output, and maximum run time between service events.

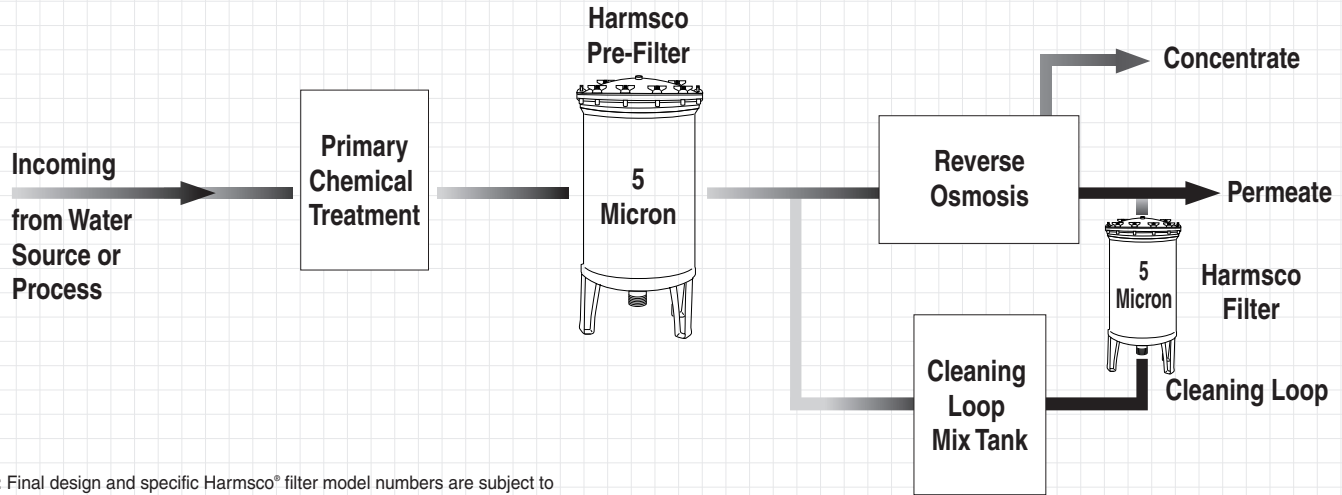
### ***Harmsco Technology***

- Engineered Polyester-Plus™ filter media for the widest choice of micron ratings, high efficiency at rated size, and high dirt holding capacity.
- Highest surface area per cartridge available in the industry for longest life and run time
- Patented Up-Flow and Hurricane® filter housing designs
- No cross contamination of clean and dirty fluids while changing filters
- Harmsco filters increase the efficiency of the system cleaning loop!



### **Quick Specs:**

- Filter cartridges available in nominal micron ratings from 0.35 to 150.
- Single cartridge filter media surface areas from 4 sq. ft. to 170 sq. ft.
- Filter housings are manufactured of electropolished 304 stainless steel - standard
- Flow Rates up to 800 gpm
- Pressure rating-150 PSI



**NOTE:** Final design and specific Harmsco® filter model numbers are subject to variables such as flow, temperature, pressure and source fluid quality

**Pre-Reverse  
Osmosis**

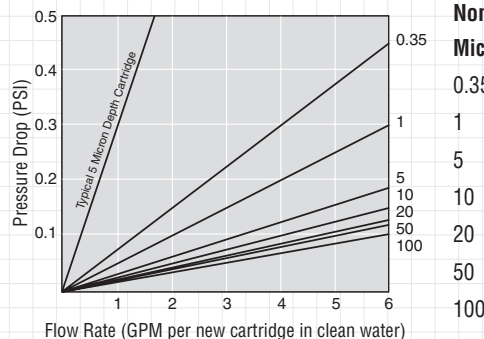
# Harmsco® 801 Series Cartridges Specifications

## Harmsco® Filter Cartridges - 801 Series Specifications

Filter Media: Polyester-Plus™  
 End Caps: Plastisol (pliable PVC)  
 Center Cores: Molded ABS, PVC, polypropylene  
 Flow Rates: 4-6 GPM (per single length cartridge)  
 Surface area: 6 sq. ft. per single length cartridge (approx.)  
 ph: 3-11  
 Dimensions: 2 3/4" OD x 1 1/16 ID x 9 3/4 Length  
 Temperatures: 140°F (250°F - high temp.)



Certified to  
ANSI/NSF-61  
up to 4 GPM



Nominal Micron	0.35	1	5	10	20	50	100
End Cap	Brown	Tan	White	Red	Blue	Yellow	Green

Product Code							
Single/ Regular	Single/ High Temp.	Double	Triple	10"	20"	30"	40"
801-0.35	_____	921-0.35	931-0.35	801-0.35/10	801-0.35/20	801-0.35/30	801-0.35/40
801-1	801-1HT	921-1	931-1	801-1/10	801-1/20	801-1/30	801-1/40
801-5	801-5HT	921-5	931-5	801-5/10	801-5/20	801-5/30	801-5/40
801-10	_____	921-10	931-10	_____	_____	_____	_____
801-20	801-20HT	921-20	931-20	801-20/10	801-20/20	801-20/30	801-20/40
801-50	801-50HT	921-50	931-50	801-50/10	801-50/20	801-50/30	801-50/40
801-100	_____	_____	_____	_____	_____	_____	_____

### High temp cartridges rated up to 250°F.

**Note:** Actual performance may vary due to temperature limits, pressure, viscosity, and time under load. For operator safety all installations should be evaluated to protect individuals from exposed equipment surfaces and high temperature liquids. (Not for high pressure steam)

**Note:** Single length 801-Series cartridges available shrink wrapped designated by "W" following product code.

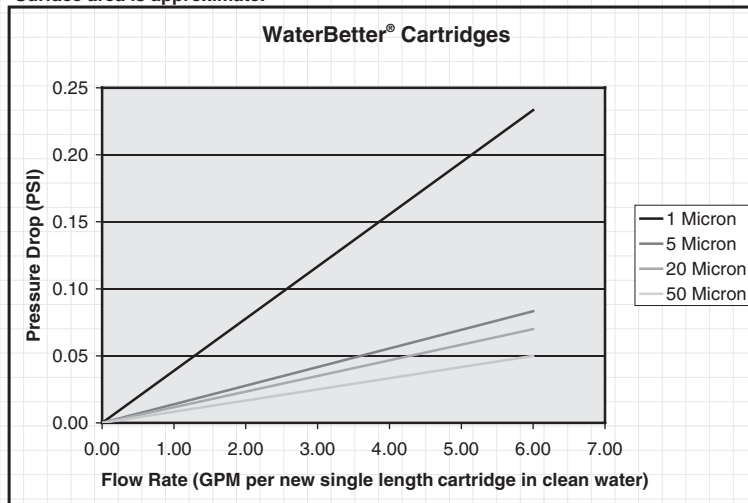
\* For competitive filter housings requiring true 10", 20", 30" and 40" length cartridges.

# WaterBetter® Series

Filter Media: Polyester-Plus™  
 End Caps: Plastisol (pliable PVC)  
 Center Cores: Molded ABS, PVC, polypropylene  
 Flow Rates: 4 GPM  
 Surface area: 4 sq. ft.  
 pH: 3-11  
 Dimensions: 2 3/4" OD x 1 1/16 ID x 9 3/4 Length  
 Temperatures: 140°F



\*Surface area is approximate.



Nominal Micron	Single (9 3/4")	Double (19 1/2")	Triple (29 1/4")
1	WB-1	WB-921-1	WB-931-1
5	WB-5	WB-921-5	WB-931-5
20	WB-20	WB-921-20	WB-931-20
50	WB-50	WB-921-50	WB-931-50

**WaterBetter® Series  
Cartridges Specifications**



### All-Poly Cartridges

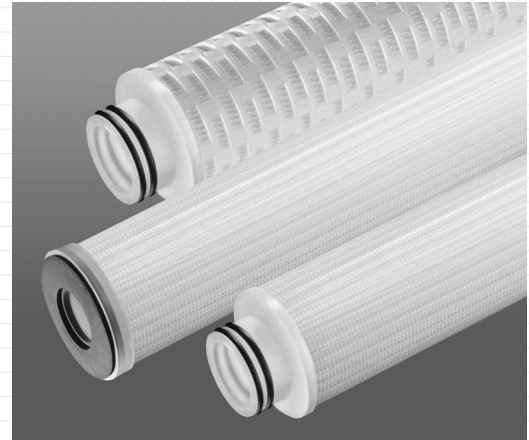
*For Fine Retention Ratings, Ultrapure Water and Chemical Compatibility*

High efficiency cartridges for wide range of filtration requirements.

All polypropylene construction for chemical compatibility; non-leaching. Pleated for increased surface area, low pressure drop and long life. Ideal for food, beverage, deionized water, fine chemicals, wastewater, plating chemicals, pharmaceutical, R/O pre-filtration and more!

#### Specifications:

Media (microfibers)	Polypropylene
Media (membrane)	Polyethersulfone
Center tubes, end caps, cage/netting	Polypropylene
Micron ratings	Nominal and absolute
O-rings (for 222 end caps)	Silicone
Flow Rate (per 9-3/4" length cartridge)	3-6 GPM in water



All-Poly cartridges fit in slimline plastic housings and Harmsco® high capacity filters. Knife edge gasket NOT required using All-Poly cartridges between top plate and cartridge using Harmsco® cluster filters.



## Harmsco® Calypso Blue™ Cartridges for “Big-Blue”® Filter Housings

Premium quality cartridges made of pleated polyester filter media for long life and high dirt holding capacity. Cartridges can be cleaned and reused in most applications and micron ratings. Available for both 10" and 20" Big-Blue® housings. Individually shrink wrapped.

**Code      Micron      No./Case      Ship Wt.**

### 10" Big-Blue Cartridges (4-1/2" OD x 9-3/4" L)

Carton dimensions: 10"x10"x21".

HB-10-0.35W	0.35	8	8 lbs.
HB-10-1W	1	8	8 lbs.
HB-10-5W	5	8	8 lbs.
HB-10-20W	20	8	8 lbs.
HB-10-50W	50	8	8 lbs.

### 20" Big-Blue Cartridges (4-1/2" OD x 20" L)

Carton dimensions: 10"x10"x21".

HB-20-0.35W	0.35	4	6 lbs.
HB-20-1W	1	4	6 lbs.
HB-20-5W	5	4	6 lbs.
HB-20-20W	20	4	6 lbs.
HB-20-50W	50	4	6 lbs.

*\*Big Blue is a registered trademark of Ametek.*

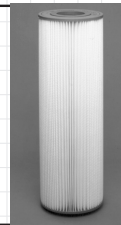


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## Harmsco® #8618 Cartridges (Fit 6" x 18" filter housings).

Non-metallic construction with pleated polyester filter media for water and water based solvents. Cartridges are cleanable and reusable in most applications. Cartridge dimensions: 18" L x 6" OD x 2-5/8" ID. Carton dimensions: 7"x7"x19".

Code	Micron	No./Case	Ship Wt.
8618-5	5	1	4 lbs.
8618-10	10	1	4 lbs.
8618-20	20	1	4 lbs.



**Harmsco® Calypso  
Blue™ Cartridges**

## Multiple Cartridge Cluster Filters

	HIF 7	HIF 14	HIF 16	HIF 21	HIF 24
Max. flow rate (U.S. GPM)	Up to 30	Up to 60	Up to 75	Up to 90	Up to 100
Max. flow rate/(LPM/M3HR)	Up to 113/Up to 7	Up to 226/Up to 14	Up to 284/Up to 16	Up to 340/Up to 21	Up to 397/Up to 24
Number of std. cartridges	7	14	16	21	24
Alternative cartridge	Single only	Doubles	Doubles	Triples	Triples
Pipe size (I/O)	1-1/2" NPT	1-1/2" NPT	<b>2" NPT</b>	1-1/2" NPT	<b>2" NPT</b>
Drain	1" NPT	1" NPT	1" NPT	1" NPT	1" NPT
Filter height	19.5" / 49 cm	28" / 71 cm	28" / 71 cm	37" / 94 cm	37" / 94 cm
Floor space requirement	13" x 13"	13" x 13"	13" x 13"	13" x 13"	13" x 13"
Shipping weight (approx.)	29 lbs. / 13 kg	39 lbs. / 18 kg	39 lbs. / 18 kg	50 lbs. / 23 kg	50 lbs. / 23 kg



	HIF 42	HIF 75	HIF 100	HIF 150FL	HIF 200FL
Max. Flow rate (U.S. GPM)	Up to 175	Up to 300	Up to 400	Up to 600	Up to 800
Max. Flow rate (LPM)/(M3HR)	Up to 662 / Up to 42	Up to 1,135/Up to 75	Up to 1,514/ Up to 100 Up	Up to 2,271/ Up to 150	Up to 3,028/ Up to 200
Number of std. cartridges	42	75	100	150	200
Alternative cartridge	Triples	Triples	Doubles	Triples	Doubles
Pipe size	2" NPT	3" NPT	3" NPT	4" flanged	4" flanged
Drain	1" NPT	1-1/2" NPT	1-1/2" NPT	1-1/2" NPT	1-1/2" NPT
Filter height	40" / 102 cm	42" / 107 cm	52" / 132 cm	48" / 122 cm	58" / 147 cm
Floor space requirement	18" x 18"	20" x 20"	20" x 20"	28" x 28"	28" x 28"
Shipping weight (approx.)/(kg)	100 lbs./45 kg	129 lbs./86 kg	188 lbs./86 kg	274 lbs./124 kg	321 lbs./156 kg=



## Harmsco® Hurricane® Series



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	HUR 40 HP	HUR 90 HP	HUR 170 HP
Max. flow rate (GPM)	Up to 50	Up to 100	Up to 150
Max. flow rate (LPM)/(M3/HR)	Up to 189/Up to 12	Up to 378/Up to 24	Up to 568/ Up to 36
Pipe size (I/O)	2" NPT	2" NPT	2" NPT
Drain (NPT)	1"	1"	1"
Filter height	21" / 54 cm	31" / 79 cm	41" / 105 cm
Floor space requirements	15" x 15"	15" x 15"	15" x 15"
Shipping weight	40 lbs. / 18 kg	51 lbs. / 23 kg.	64 lbs. / 29 kg

## Harmsco® Waterbetter® Series

	WB 40SC-2	WB 90SC-2	WB 170SC-2
Flow rate (U.S. GPM)*	Up to 50	Up to 100	Up to 150
Flow rate (LPM)*/(M3HR)	Up to 189/Up to 12	Up to 378/Up to 24	Up to 568/Up to 36
Pipe Size (I/O) (NPT)	2"	2"	2"
Drain Size	1"	1"	1"
Filter height	21" / 54 cm	31" / 79 cm	41" / 105 cm
Floor space / Footprint	15" x 15"	15" x 15"	15" x 15"
Shipping weight (approx.)	40 lbs. / 18 kg	51 lbs. / 23 kg	64 lbs. / 29 kg

\* Note: Lower flow rates and pressures result in longer cartridge life. Designing to 70-80% of maximum flow will increase overall performance.



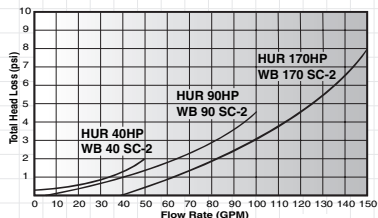
# Harmsco® Hurricane® Cartridge Specifications

Filter Media: Polyester-Plus™  
 End Caps: Plastisol (pliable PVC)  
 Center Tube: PVC  
 Flow rates: HC/40 - 50 GPM (189 LPM)  
 HC/90 - 100 GPM (378 LPM)  
 HC/170 - 150 GPM (568 LPM)  
 Surface area: HC/40 - 40 sq.ft.  
 HC/90 - 90 sq.ft.  
 HC/170 - 170 sq.ft.  
 ph: 3-11  
 Temperatures: 140°F (60°C)

\* Temperature limit, vary and depend on pressure and time under load.



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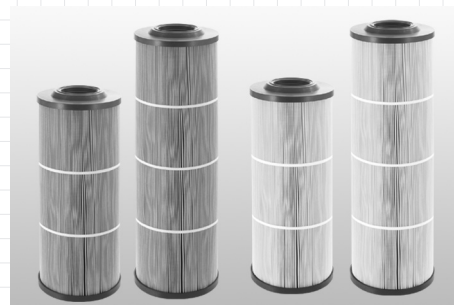


Filter Model	Cartridge Product Code	Nominal Micron	Cartridge Dimensions		
			L	x OD	x ID
WB 40 SC-2	HC/40-0.35	0.35	9-5/8"	7-3/4"	3" FPT
	HC/40-1	1	9-5/8"	7-3/4"	3" FPT
	HC/40-5	5	9-5/8"	7-3/4"	3" FPT
	HC/40-10	10	9-5/8"	7-3/4"	3" FPT
	HC/40-20	20	9-5/8"	7-3/4"	3" FPT
	HC/40-50	50	9-5/8"	7-3/4"	3" FPT
	HC/40-100	100	9-5/8"	7-3/4"	3" FPT
	HC/40-150	150	9-5/8"	7-3/4"	3" FPT
	HC/40-EZ-CLEAN**	N.R.	9-5/8"	7-3/4"	3" FPT
WB 90 SC-2	HC/90-0.35	0.35	19-1/2"	7-3/4"	3" FPT
	HC/90-1	1	19-1/2"	7-3/4"	3" FPT
	HC/90-5	5	19-1/2"	7-3/4"	3" FPT
	HC/90-10	10	19-1/2"	7-3/4"	3" FPT
	HC/90-20	20	19-1/2"	7-3/4"	3" FPT
	HC/90-50	50	19-1/2"	7-3/4"	3" FPT
	HC/90-100	100	19-1/2"	7-3/4"	3" FPT
	HC/90-150	150	19-1/2"	7-3/4"	3" FPT
	HC/90-EZ-CLEAN**	N.R.	19-1/2"	7-3/4"	3" FPT
WB 170 SC-2	HC/170-0.35	0.35	30-3/4"	7-3/4"	3" FPT
	HC/170-1	1	30-3/4"	7-3/4"	3" FPT
	HC/170-5	5	30-3/4"	7-3/4"	3" FPT
	HC/170-10	10	30-3/4"	7-3/4"	3" FPT
	HC/170-20	20	30-3/4"	7-3/4"	3" FPT
	HC/170-50	50	30-3/4"	7-3/4"	3" FPT
	HC/170-100	100	30-3/4"	7-3/4"	3" FPT
	HC/170-150	150	30-3/4"	7-3/4"	3" FPT
	HC/170-EZ-CLEAN**	N.R.	30-3/4"	7-3/4"	3" FPT

\*\*100% Synthetic media to prefilter organic matter and particulate.

# Harmsco® Hurricane® High Temperature

Filter Media: Cellulose Phenolic or Polyester-Plus™  
End Caps: Injection molded glass filled ABS  
Center Cores: Tinned steel  
Flow rates: HC/90...HT 50 GPM  
                  HC/170...HT 100 GPM  
ph: 4-10  
Temperatures: Up to 250°F when installed in Harmsco®  
                  all stainless steel housings.



Note: Actual performance may vary due to temperature limits, pressure, viscosity, and time under load. For operator, safety in all installations should be evaluated to protect individuals from exposed equipment surfaces and high temperature liquids. (Not for high pressure steam)

Part Number	Micron Rating	Filter Media	Dimensions
HC/90-5CPHT	5	Cellulose Phenolic	7-3/4" x 19-1/2"
HC/90-10HT	10	Polyester-Plus™	7-3/4" x 19-1/2"
HC/90-20HT	20	Polyester-Plus™	7-3/4" x 19-1/2"
HC/90-50HT	50	Polyester-Plus™	7-3/4" x 19-1/2"
HC/170-5CPHT	5	Cellulose Phenolic	7-3/4" x 30-3/4"
HC/170-10HT	10	Polyester-Plus™	7-3/4" x 30-3/4"
HC/170-20HT	20	Polyester-Plus™	7-3/4" x 30-3/4"
HC/170-50HT	50	Polyester-Plus™	7-3/4" x 30-3/4"

**Harmsco® Hurricane®  
High Temperature**

## Residential Water Treatment Technologies

Problem/Contaminant	Symptom	Possible Treatment	Use
Sediment or particles in water	Visible particles in water	Pleated filter cartridge filtration	Whole house filtration or "point of use filtration"
Milky water	Cloudy or hazy appearance in water	Pleated filter cartridge filtration	Whole house filtration or "point of use filtration"
Well Turbidity	Sand, silt, dirt in water	Pleated filter cartridge filtration	Whole house filtration
Chlorine	Chlorine taste and smell. "Green tint" to water	Activated carbon treatment in combination with pleated filter cartridge sediment filtration	Whole house filtration or "point of use filtration"
Hard water	Scaling on plumbing fixtures	Softening media, polyphosphate or sodium silicate with pleated filter cartridge sediment filtration	Whole house filtration or "point of use filtration"
Odor	"Fishy" or "earthy" smell; Chlorine odor from city water	Activated carbon treatment in combination with pleated filter cartridge sediment filtration	Whole house filtration or "point of use filtration"
Odor	"Rotten egg" odor due to hydrogen sulfide (H <sub>2</sub> S)	Manganese greensand media (to 6ppm H <sub>2</sub> S) chlorination followed by dechlorination and pleated filter cartridge sediment filtration	Whole house media filtration with chlorination followed by de-chlorination



Problem/Contaminant	Symptom	Possible Treatment	Use
Pesticides	"Chemical taste" laboratory testing or public notification	Activated carbon	Whole house media filtration
Arsenic	Laboratory testing or public notification	Activated Alumina	Whole house media filtration
Lead	Laboratory testing or public notification	Activated carbon	Whole house filtration or "point of use filtration"
Cryptosporidium and Giardia	Laboratory testing or public notification	1 Micron "absolute" pleated filter cartridge filtration (Note: Chlorine is generally ineffective against Cryptosporidium)	Whole house filtration
Volatile Organic Compounds- V.O.C. (eg. Benzene, trichloroethylene, other "petroleum" based contaminants)	Laboratory testing or public notification	Activated carbon	Whole house media filtration
Nitrates	Laboratory testing or public notification	Anion resin	Whole house media filtration

Harmsco® Filtration Products has remained an industry standard and benchmark since 1958. As a pioneer in the filtration industry, Harmsco holds numerous U.S. Patents for innovative filtration technologies while maintaining our focus and commitment toward quality and value for the end user.

For additional information, contact us now or visit us online!

***[www.harmsco.com](http://www.harmsco.com)***

OEM and Custom Product Applications and Production opportunities are available, upon request.

***Harmsco is your best choice for Liquid Filtration Solutions!***



**Harmsco® Filtration Products**

P.O. Box 14066, North Palm Beach, FL 33408

(561) 848-9628 • Toll Free: (800) 327-3248

Fax: (561) 845-2474 • e-mail: [sales@harmsco.com](mailto:sales@harmsco.com)

