

# Harmsco® Up-Flow Filters

*Attractively priced stainless steel filter housings with unique features to provide superior filtration performance*



# Up-Flow Cartridge Filtration . . .

## A design so superior it's patented!

Harmsco® Up-Flow Cartridge Filters outperform conventional filter designs because the outlet is located **above** the inlet to eliminate air entrapment during operation. With Up-Flow filters, liquid enters the vessel through the inlet, located at the bottom of the filter. As the liquid travels **upward**, it flows through the filter media, past the top seal,

separating the dirty and clean water chambers, and down the standpipe as it exits the filter. Because the top of the standpipe is located **above** the top seal, air is self-purged from the filter to eliminate vents and improve filtration efficiency. Additional features and benefits are described below:

### Rugged stainless steel construction

Harmsco Up-Flow Filters are made of low carbon 304 stainless steel for durability and long equipment life.

### Electro-polished for increased resistance to corrosion

All stainless steel components are electro-polished for a superior finish and increased durability.

### Pressure rated and hydrostatically tested

All filters are pressure rated to 150 psi (10 bar) and hydrostatically tested.



### Individual studs for safe, secure lid closure

We have the safest lid in the business with individual studs for optimum security. No v-clamps with only one bolt to secure lids.

### Wing nuts

Wing nuts are used so no tools are required. Finger tight is generally sufficient. Hex nuts are recommended with 75 foot lbs. of torque above 100 psi.

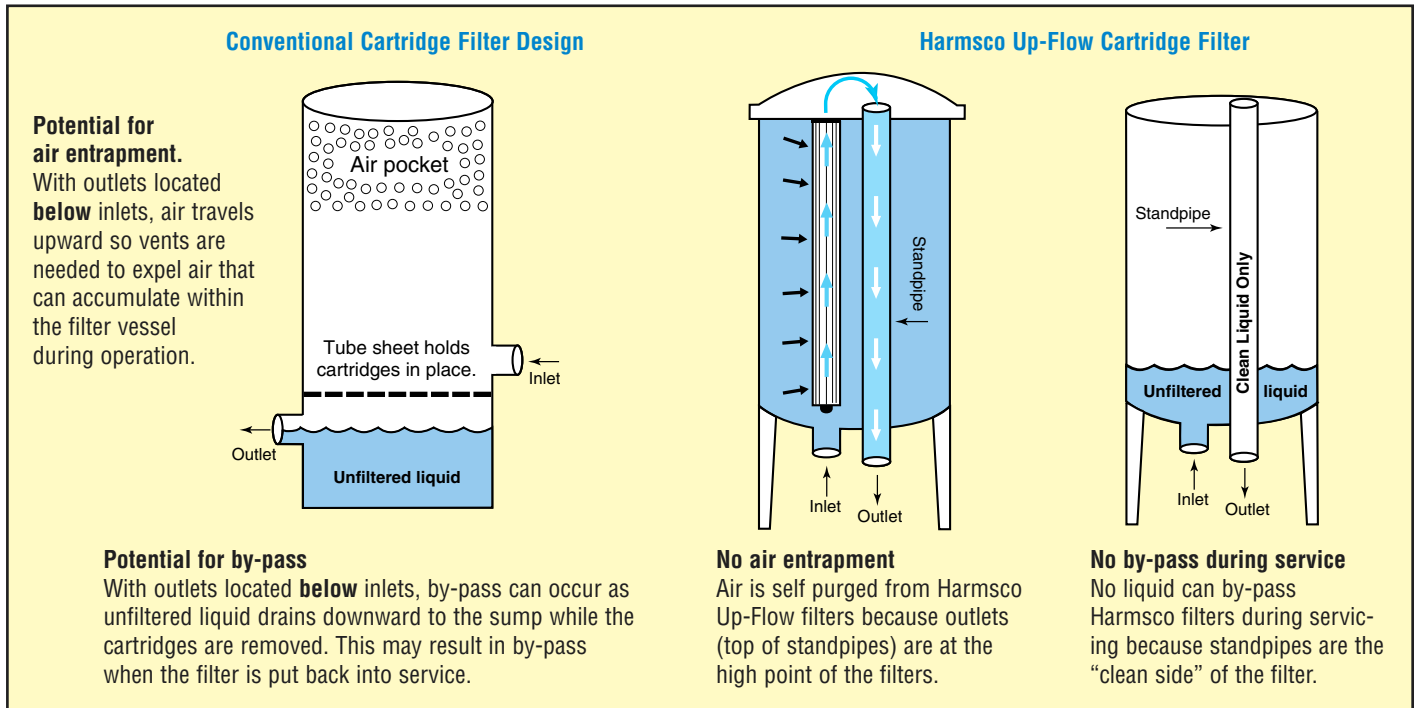


### Easy cartridge installation, removal and service

Our 7, 14, 16, 21 and 24 cartridge models have all cartridges arranged in a single "cartridge cluster" for easy installation, removal and service. This makes maintenance a snap!

## Harmsco Up-Flow Filters Outperform the Competition!

With conventional cartridge filter designs, inlets are located **above** outlets. Therefore, vents are required to relieve air that can accumulate within the filter vessel during operation. By-pass can also occur when unfiltered liquid drains to the sump while the cartridges are removed, when the filter is put back in service. Please see diagrams, below:



# Two Filter Styles

We manufacture a complete line of stainless steel filter housings using the two filter designs shown below:



### Chemical Resistant Coating

Harmsco Filters are available with fusion bonded epoxy coating for chemical resistance. The coating is NSF Standard 61 Certified. It is applied to all stainless steel surfaces (inside and out), and it is far more resistant than 316 stainless steel. Fusion bonded epoxy coating is ideal for sea water applications and when resistance to aggressive chemicals is required.



### Cartridge Cluster Filters

All cartridges in our 7, 14, 16, 21 and 24 models are arranged in a single "cartridge cluster", so all cartridges are removed at one time.

### High capacity models

With these models cartridges are installed on lifting rods so a single stack of cartridges are removed at one time for convenience.

### Specifications

<b>Filter vessel &amp; metal components</b>	Low carbon 304 stainless steel, electro polished for increased resistance to corrosion.
<b>Holding rods, lifting rods &amp; standpipes</b>	CPVC, standard models; 304 stainless steel, All-Stainless models
<b>Pipe caps</b>	CPVC, standard models; 304 stainless steel, All-Stainless models.
<b>Rim gaskets</b>	EPDM, standard. Buna-N and Viton available.
<b>O-Rings</b>	Buna-N, standard. EPDM and Viton available.
<b>Bottom seals</b>	Natural gum rubber, standard. EPDM and Buna-N available.
<b>Wing nuts</b>	Brass. Brass nuts and stainless steel flat washers available.
<b>Temperature</b>	Rated to 140°F (60°C) with CPVC rods, pipe caps, standpipes and standard Harmsco cartridges. To 200°F (93°C) for all stainless models with stainless steel rods, pipe caps, standpipes and Harmsco High-Temp cartridges. Temperature limits vary and depend on pressure and time under load.
<b>Pressure</b>	Rated for pressures to 150 psid (10 bar) maximum.
<b>Flow</b>	Typical flow rates are 3-6 GPM per single length (9-3/4") Harmsco cartridge. Published data is for guidelines only. Please consult pressure drop charts.

### Easy cartridge installation, removal and replacement

To install cartridges in our "cartridge cluster" models, follow the simple directions shown below:



Install cartridge on holding rod.



Tighten threaded pipe cap securely.



Hold cartridge by end cap and rotate until secure.



Cartridge cluster is ready for installation.

# Cartridge Cluster Filters



With Harmsco **cluster filters**, the entire set of filter cartridges is removed at one time for cleaning or replacement.



Flow rate (U.S. GPM)	Up to 30	Up to 60	Up to 75	Up to 90	Up to 100
Flow rate (LPM)	Up to 113	Up to 226	Up to 284	Up to 340	Up to 397
Flow rate (M <sup>3</sup> HR)	Up to 7	Up to 14	Up to 16	Up to 21	Up to 24
Number of std. cartridges	7	14	16	21	24
Alternative cartridge	Single only	Doubles	Doubles	Triples	Triples
Pipe size	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"
Service height clearance	35" / 89 cm	48" / 122 cm	48" / 122 cm	68" / 173 cm	68" / 173 cm
Shipping weight (approx.)	29 lbs. / 13 kg	39 lbs. / 18 kg	39 lbs. / 18 kg	50 lbs. / 23 kg	50 lbs. / 23 kg



## Cartridge selection

Our single length cartridges fit all Harmsco filter housing models. HIF-14 and HIF-16 models also take our double length cartridges; HIF-21 and HIF-24 filter models can take triple length cartridges.

## Cleanable & reusable!

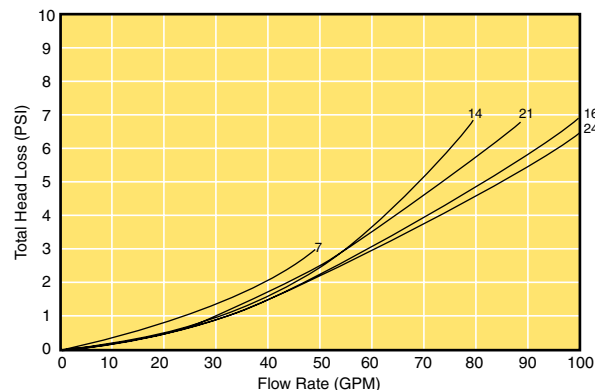
Harmsco cartridges are reusable in most applications and micron ratings.



## Initial Pressure Drop for Harmsco Cluster Filters in Clean Water (Models HIF-7, HIF-14, HIF-16, HIF-21 and HIF-24)

### Low pressure drop

Initial pressure drop with Harmsco Filters and Replacement Cartridges is exceptionally low because our pleated cartridge design provides more surface area for reduced resistance to flow. This chart indicates the initial pressure drop for Harmsco cartridge cluster filters with 20 micron cartridges in clean water.



### Temperatures

Standard filters with CPVC holding rods, pipe caps and standpipes with standard Harmsco cartridges are temperature rated to 140°F (60°C). Models with stainless steel internals are temperature rated to 200°F (93°C) with Harmsco High-Temp cartridges. Results may vary; ratings are based on pressures and time under load.

# High Capacity Models



High capacity filters have lifting rods to remove a single stack of cartridges at one time.



**HIF-42**



**HIF-75**



**HIF-100**



**HIF-150-FL**



**HIF-200-FL**

Flow rate (U.S. GPM)	Up to 175	Up to 300	Up to 400	Up to 600	Up to 800
Flow rate (LPM)	Up to 662	Up to 1,135	Up to 1,514	Up to 2,271	Up to 3,028
Flow rate (M <sup>3</sup> HR)	Up to 42	Up to 75	Up to 100	Up to 150	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"
Service height clearance	68" / 173 cm	70" / 178 cm	87" / 221 cm	76" / 193 cm	93" / 236 cm
Shipping weight (approx.)	100 lbs.	129 lbs.	188 lbs.	274 lbs.	321 lbs.
Shipping weight (kg)	45 kg	59 kg	86 kg	124 kg	146 kg



## Cartridge selection

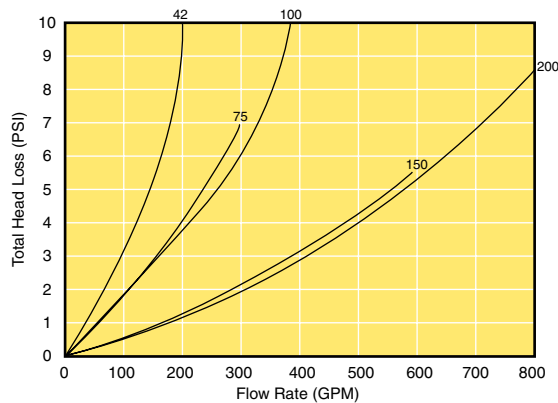
Our single length cartridges fit all Harmsco filter housing models. Models HIF-100 and HIF-200-FL can take double length cartridges; HIF-42, HIF-75 and HIF-150-FL can take triple length cartridges.

## Victaulic fittings and adjustable legs

Models HIF-7, 14, 16, 21, & 24 available with victaulic fittings and adjustable legs. Models HIF-42, 75, and 100 available with victaulic fittings and fixed legs. Minimum orders apply.



## Initial Pressure Drop for Harmsco High Capacity Filters in Clean Water (Models HIF-42, HIF-75, HIF-100, HIF-150-FL and HIF-200-FL)



## Low pressure drop

This chart indicates the initial pressure drop for our high capacity models with 20 micron cartridges in clean water.

### Note:

Some of the information in this publication has been obtained from outside sources and is considered accurate. Temperature ratings, flow rates and chemical resistance can be affected by a number of unknown factors. For this reason, we do not assume any liability for the accuracy or completeness of the data in this publication. End users should perform their own tests to determine suitability for each application.

# Applications

Typical applications for Harmsco Up-Flow Filter Housings and Replacement cartridges:

- Drinking water
- Bottled water
- Ground water
- Asbestos abatement
- Chill water
- Industrial
- Process water
- Beverages
- Surface water
- Plating baths
- Desalination prefilters
- Commercial
- R/O Pre-Filtration
- Drinking fountains
- Rinse water
- Cooling water
- Ultrafiltration
- Municipal
- Industrial waste water
- Whole house filtration
- Environmental
- Heating loops
- Spray nozzles
- And More!

## Chemical compatibility

	Filter Housing									Media	Elastomers	
	PVC	304 S.S.	316 S.S.	304 + Resistant Coating	Polypropylene	Polyester	Polypropylene	EPDM	Buna-N			Viton
<b>Acids</b>												
Acetic (50%)	●	◆	●	●	●	●	●	●	◆	●		
Formic (50%)	○	◆	◆	●	●	●	●	●	◆	●	●	
Hydrochloric (30%)	●	●	●	●	●	◆	●	●	●	●	●	
Sulfuric (50%)	●	●	●	●	●	●	●	●	●	●	●	
<b>Alcohols</b>												
Benzyl	●	●	●	●	●	●	●	●	●	●	●	
Butyl	●	●	●	●	◆	◆	◆	●	●	●	●	
Ethylene Glycol	●	●	●	●	●	●	●	●	●	●	●	
Methyl	●	●	●	●	●	●	●	●	●	●	●	
<b>Amines</b>												
Aniline	●	●	●	●	●	●	●	◆	●	●	●	
<b>Bases</b>												
Ammonium Hydroxide (30%)	●	●	●	●	●	●	●	●	●	●	◆	
Sodium Hydroxide (40%)	●	●	●	●	●	●	●	◆	◆	◆	◆	
<b>Beverages</b>												
Beer	●	●	●	●	●	●	●	●	●	●	●	
Wine	●	●	●	●	●	●	●	●	●	●	●	
<b>Ethers</b>												
Ethyl Ether	●	●	●	◆	●	◆	●	●	●	●	●	
<b>Esters</b>												
Butyl Acetate	●	●	●	●	●	●	●	●	●	●	●	
Ethyl Acetate	●	●	●	●	●	●	●	◆	●	●	●	
Methyl Acetate	○	●	●	●	●	●	●	◆	●	●	●	
<b>Fuels</b>												
Gasoline	●	●	●	●	●	○	●	●	●	●	●	
Jet Fuel	●	●	●	●	●	●	●	●	●	●	●	
Kerosene	●	●	●	●	●	●	●	●	●	●	●	
<b>Hydrocarbons</b>												
Benzene	●	●	●	●	●	●	●	●	●	●	●	
Toluene	●	●	●	●	●	●	●	●	●	●	●	
<b>Ketones</b>												
Acetone	●	●	●	●	●	●	●	●	●	●	●	
<b>Oils</b>												
Diesel Fuel	●	●	●	●	●	●	●	●	●	●	●	
Fuel	●	●	●	●	●	●	●	●	●	●	●	
Lube	●	●	●	●	●	●	●	●	●	●	●	
Olive	●	●	●	●	●	●	●	●	●	●	●	
<b>Oxidizers</b>												
Sodium Hypochlorite (5%)	●	◆	●	●	●	◆	●	●	◆	●	●	
Hydrogen Peroxide (30%)	●	●	●	●	●	●	●	●	●	●	●	
Ozone (to 0.4 PPM)	●	●	●	●	●	●	●	●	●	●	●	
<b>Plating Solutions</b>												
Arsenic	○	○	●	●	●	○	●	●	●	●	●	
Gold Cyanide	●	●	●	●	●	○	●	●	●	●	●	
Silver	●	●	●	●	●	○	●	●	●	●	●	
Tin Acid	●	○	○	●	●	○	●	●	●	●	●	
<b>Miscellaneous</b>												
Kerosene	●	●	●	●	●	●	●	●	●	●	●	
Mineral Spirits	●	●	●	●	●	●	●	●	●	●	●	
Turpentine	●	●	●	●	●	●	●	●	●	●	●	
Sea Water	●	●	◆	●	●	●	●	●	●	●	●	

\* PVC used for center tubes & end caps on Harmsco, WaterBetter and Poly-Pleat cartridges. Compatibility tests at room temperature (72°F/26°C). Data provided by independent sources and performance varies. Harmsco is not liable or responsible for the information provided. Users should ultimately determine suitability.

## Harmsco Portable Filters

Portable filters include filter, base assembly with wheels and handle. Pump and electricals not included.

**Model**  
**HIF-14-BKP**

Flow rate: To 60 GPM  
Pipe size: 1-1/2"  
Type: Pressure/  
cartridge  
Pressure: 150 psi  
Ship wt.: 59 lbs.  
27 Kg



**HIF-14-BKP**

Temperature limits depend on filter cartridge or filter bag used. Power source must be protected by GFI.

## Harmsco All Stainless Filter Housing

Filters come with stainless steel holding rods and standpipes for high temperatures and aggressive chemicals. O-rings are Buna-N; rim gaskets are EPDM; other options, including viton available.

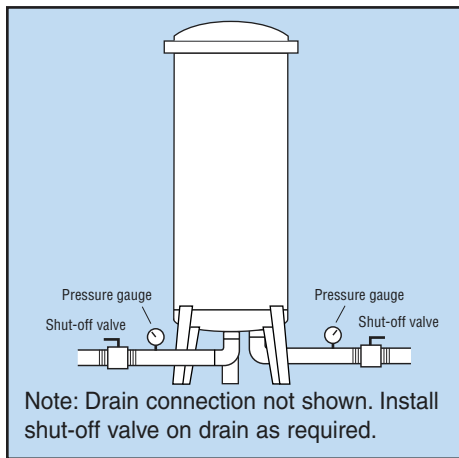
**Note:**

Model HIF-7-SS-222 accepts seven cartridges with 222 adapters, eliminating the need for holding rods.



Model	Flow Rate	Pipe Size	Ship Wt.
HIF-7-SS	To 30 GPM	1-1/2"	30 lbs. 14 Kg
HIF-7-SS-222	To 30 GPM	1-1/2"	35 lbs. 16 Kg
HIF-14-SS	To 60 GPM	1-1/2"	40 lbs. 18 Kg
HIF-16-SS	To 75 GPM	2"	42 lbs. 19 Kg
HIF-24-SS	To 100 GPM	2"	52 lbs. 24 Kg

## Installation (Follow these basic procedures depending on the model used.)



### Installation guidelines

1. Install filter housing on the pressure side of pump.
2. Install 90° elbow on inlet pipe fitting.
3. Install 90° elbow on outlet pipe fitting (which is connected to the standpipe).
4. Connect pipe from discharge of pump to elbow on inlet fitting.
5. Connect discharge pipe to elbow on outlet fitting.
6. Install 90° elbow on drain and connect drain pipe (or cap if drain is not needed).

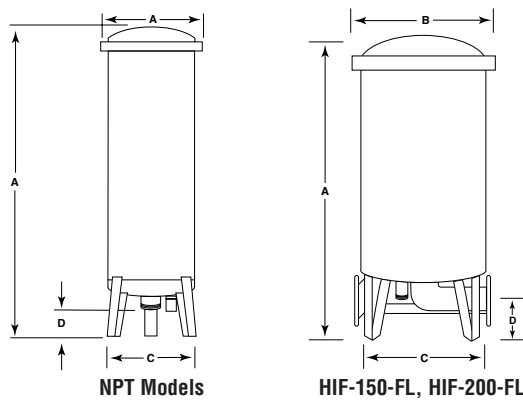
### Important

Install pressure gauges before and after filter housing to indicate when to replace (or clean) cartridges. Typically, replace cartridges at 30 psi differential; clean cartridges at approximately 12-15 psi differential.

### Note:

Harmsco and Waterbetter cartridges are cleanable and reusable in most water filtration applications using 5 micron cartridges and up.

## Dimensions



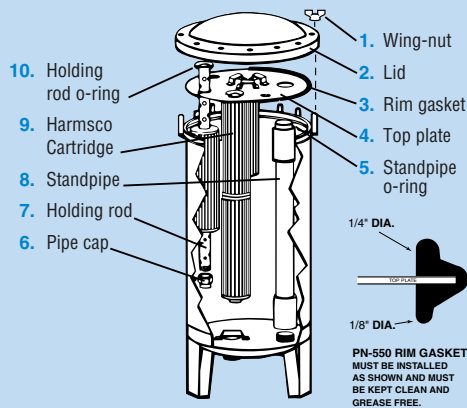
Model	A	B	C	D	Service Ht. Clear	Inlet/Outlet	Drain
HIF-7	19-1/2"	13"	13"	3-1/2"	35"	1-1/2" NPT	None*
HIF-14	28"	13"	13"	3-1/2"	48"	1-1/2" NPT	None*
HIF-16	28"	13"	13"	4"	48"	2" NPT	1" NPT
HIF-21	37"	13"	13"	3-1/2"	68"	1-1/2" NPT	None*
HIF-24	37"	13"	13"	4"	68"	2" NPT	1" NPT
HIF-42	40"	18"	18"	5-3/8"	68"	2" NPT	None*
HIF-75	42"	20"	20"	6-3/8"	70"	3" NPT	None*
HIF-100	52"	20"	20"	5-7/8"	87"	3" NPT	None*
HIF-150-FL	48"	28"	28"	5-3/16**	76"	4" flange	1-1/2" NPT
HIF-200-FL	58"	28"	28"	5-3/16**	93"	4" flange	1-1/2" NPT

\*Install tee fittings and valve on inlet for drain (see installation diagrams).

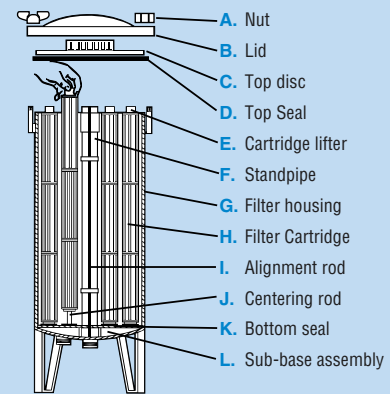
\*\* To center of flange fittings

## Spare Parts & Components

### Harmsco "Cartridge Cluster Filters"



### Harmsco "High Capacity Filters"



#### Replacement Part Numbers for Cluster Filters

Item	HIF-7 Part	Qty.	HIF-14 Part	Qty.	HIF-16 Part	Qty.	HIF-21 Part	Qty.	HIF-24 Part	Qty.
1	202-B	12	202-B	12	202-B	12	202-B	12	202-B	12
2	530-A	1	530-A	1	530-A	1	530-A	1	530-A	1
3	550-E	1	550-E	1	550-E	1	550-E	1	550-E	1
4	519-SS	1	519-SS	1	901-SS	1	519-SS	1	901-SS	1
5	551-B	1	551-B	1	930-B	1	551-B	1	930-B	1
6	513-C	7	513-C	7	513-C	8	513-C	7	513-C	8
7	555-C	7	512-C	7	512-C	8	534-C	7	534-C	8
8	560-C	1	531-C	1	965-C	1	532-C	1	1445-C	1
9	Cart.	7	Cart.	14	Cart.	16	Cart.	21	Cart.	24
10	552-B	7	552-B	7	552-B	8	552-B	7	552-B	8

#### Replacement Part Numbers for High Capacity Filters

Item	HIF-42 Part	Qty.	HIF-75 Part	Qty.	HIF-100 Part	Qty.	HIF-150-FL Part	Qty.	HIF-200-FL Part	Qty.
A	202-B	16	202-B	20	202-B	20	202-B	20*	202-B	20*
B	611-A	1	669-A	1	669-A	1	613-A	1	613-A	1
C	633-SS	1	670-SS	1	670-SS	1	651-SS	1	651-SS	1
D	635-E	1	671-E	1	671-E	1	653-E	1	653-E	1
E	622-C	14	622-C	25	623-C	25	622-C	50	623-C	50
F	630-C	1	672-C	1	673-C	1	646-C	1	647-C	1
G	601-A	1	674-A	1	675-A	1	606-A	1	607-A	1
H	Cart.	42	Cart.	75	Cart.	100	Cart.	150	Cart.	200
I	None		678-3	1	679-3	1	678-4	1	679-4	1
J	625-P	14	625-P	25	625-P	25	625-P	50	625-P	50
K	639-N	14	639-N	25	639-N	25	639-N	50	639-N	50
L	637-SS	1	677-SS	1	677-SS	1	638-SS	1	638-SS	1

\*HIF-150-FL and HIF-200-FL filters also use 20 202-BT (high) wingnuts.