



3M™ Water Filtration Products

High Flow Series



Recipe Quality Water™



3M™ Water Filtration Products High Flow Series can meet the filtration needs of an entire foodservice establishment or address specific applications one at a time. A one-cartridge High Flow system with revolutionary **Integrated Membrane Pre-Activated Carbon Technology** (“IMPACT”) media delivers **Recipe Quality Water™** at a flow rate of up to 18.9 lpm and accomplishes what was previously the job of a three- or four-cartridge system. No activation steps are required. Whether your foodservice application is cold beverages, ice machines, coffee, tea, espresso, or any combination, a 3M Water Filtration Products High Flow Series system is the one you should count on for unprecedented cyst and bacteria reduction, sediment holding, chlorine taste and odor reduction, and scale inhibition.



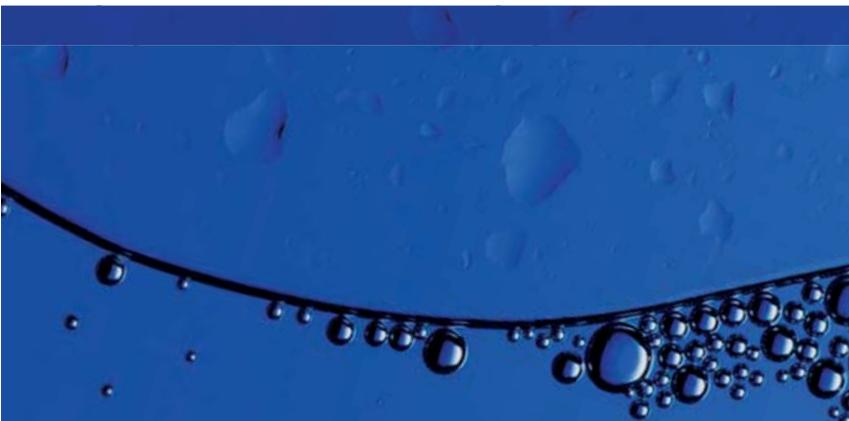
The 3M High Flow Series Provides

<p>Economy</p>	<ul style="list-style-type: none"> • Single-cartridge flow rates and capacities previously available only with three- or four-cartridge systems. • Up to 12 month cartridge life for cartridges with Integrated Membrane Pre-Activated Carbon Technology (“IMPACT”) media.
<p>Ease</p>	<ul style="list-style-type: none"> • Fast and easy cartridge change-outs with SQC - Sanitary Quick Change - encapsulated cartridge design. • No requirement for pre-activation of the media. • Direct or easily-adaptable connections to existing plumbing lines with NPT horizontal inlet and outlet ports. • No exposure to contaminated media.
<p>Certification</p>	<ul style="list-style-type: none"> • FDA CFR-21 and/or NSF Standard 42 compliant materials. • Certification to NSF Standard 53 for cyst reduction and reduction of 99.99 percent of water-borne bacteria* when using 3M Water Filtration Products nylon-membrane cartridge filters.
<p>Performance</p>	<ul style="list-style-type: none"> • Recipe Quality Water for all commercial foodservice applications, including cold beverages, ice and all brewed beverages. • Combined sediment, cyst, water-borne bacteria* and scale reduction with chlorine taste and odor reduction in a single cartridge from our innovative Integrated Membrane Pre-Activated Carbon Technology (“IMPACT”) media. • Reduction of sediment and abrasive hard particles helps to extend the life of pumps, valves, o-rings, and seals. • Compact manifold systems to simultaneously service multiple applications.

* Measured with *E.coli*. Selected cartridges only

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About CUNO — A Market Leading Filtration Company

CUNO is a leader in the design, manufacture, and marketing of a comprehensive line of filtration products for the separation, clarification, and purification of fluids and gasses. Its proprietary products are used in drinking water, healthcare, and industrial markets. CUNO operates manufacturing facilities and sales offices throughout the world.

About 3M — A Global, Diversified Technology Company

Every day, 3M people find new ways to make amazing things happen. Wherever they are, whatever they do, the company’s customers know they can rely on 3M to help make their lives better. 3M’s brands include Scotch™, Post-it™, Scotchgard™, Thinsulate™, Scotch-Brite™, Filtrete™, Command™ and Vikuiti™. Serving customers in more than 200 countries around the world, the company’s 67,000 people use their expertise, technologies and global strength to lead in major markets including consumer and office; display and graphics; electronics and telecommunications; safety, security and protection services; health care; industrial and transportation.

With revolutionary Integrated Membrane Pre-Activated Carbon Technology (“IMPACT”) media for superior throughput and cartridge life, the 3M™ Water Filtration Products 3M High Flow Series of commercial foodservice products offers simple, effective and easy-to-install solutions that meet the volume, water clarity and maintenance expectations of restaurant owners, fast food and convenience store operators, supermarkets, cafeterias, and institutions.

For cold, hot, and specialty beverages, ice, or any combination of applications, 3M High Flow Water Filtration Products has an option for you including cyst and bacteria-reduction and filters especially constructed for higher turbidity waters. 3M Water Filtration Products can help you lower capital and operating costs for your foodservice operation.

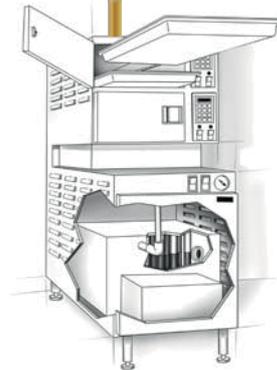


Water Source

For central systems serving multiple applications, go to page 8

For systems dedicated to the improved taste, appearance and consistency of cold beverages, go to page 9

For scale reduction applications, go to pages 14 and 15.



Steamer



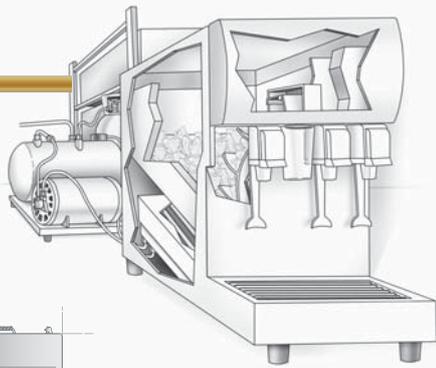
Scale Inhibited Water

For systems dedicated to cleaner, consistent, great-tasting ice, go to pages 10 and 11.

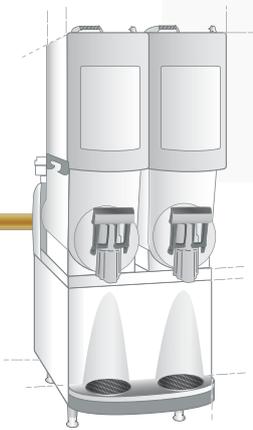


Ice Machine

For systems dedicated to great tasting espresso and iced tea, go to pages 12 and 13.



Post Mix

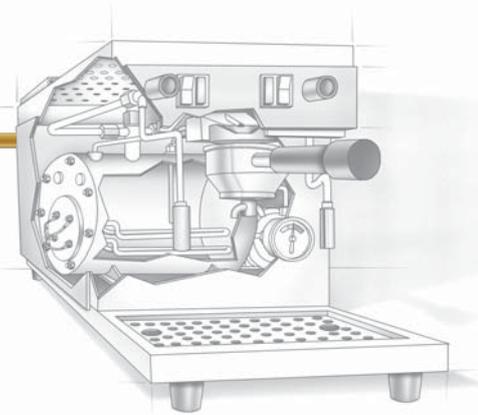


FCB Machine

For systems dedicated to great tasting coffee and tea, go to pages 12 and 13.



Coffee Brewer



Espresso Machine



Ice Tea Machine

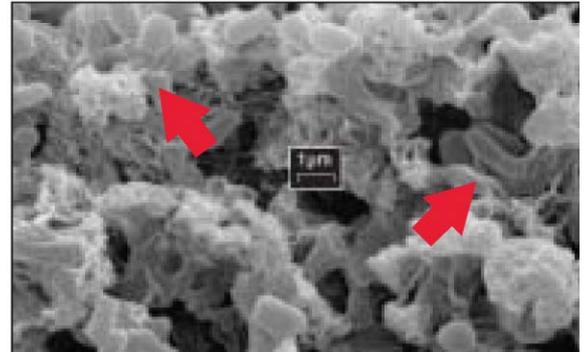


3M™ Water Filtration Products High Flow Series uses revolutionary Integrated Membrane Pre-Activated Carbon Technology (“IMPACT”) for superior cartridge life and economy. A single filter can accomplish what was previously the job of a three- or four-cartridge system.

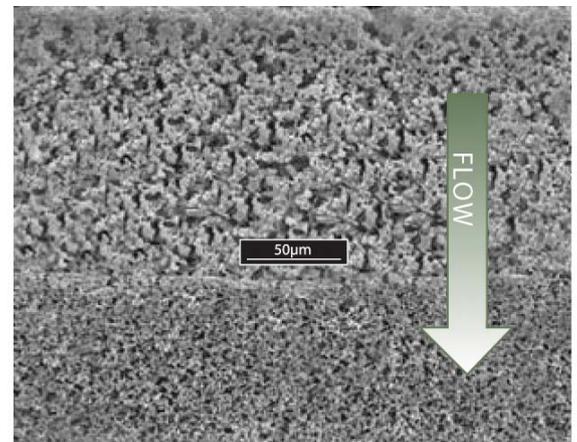
The “IMPACT” media package combines a patented pharmaceutical-grade microporous membrane and a pre-activated carbon block in a single cartridge to dramatically reduce pressure drop and practically eliminate the need for pre-filtration. The integrated membrane provides superior sediment holding capabilities while reducing

Over 99.99% of E.coli bacteria are reduced by the nylon pharmaceutical-grade membrane.

Cryptosporidium and Giardia cysts¹ and over 99.99 percent of all water-borne bacteria.² The polycarbon block releases virtually no carbon fines. Pre-activation of the carbon media is not required.



Reduce scale formation, cysts, bacteria, sediment, and chlorine taste and odor with convenience and superior performance. Stop wasting time and money on messy sump systems. By creating a single cartridge system that delivers over 864,000 8-oz cups of coffee, 432,000 16-oz soft drinks (in a 22-oz cup), or 216,000 pounds of ice (25 gallons at 100 lbs of ice) at a flow of up to 5 gallons per minute (gpm), 3M Water Filtration Products deliver Recipe Quality Water™ while reducing filtration costs.



Two-Zone Membrane

Large particles are captured in the top zone and smaller particles in the bottom zone of the graded density microporous nylon membrane, providing superior cartridge sediment-holding capacity.



Enhanced High Flow HF90 cartridge bacteria membrane



Competitor

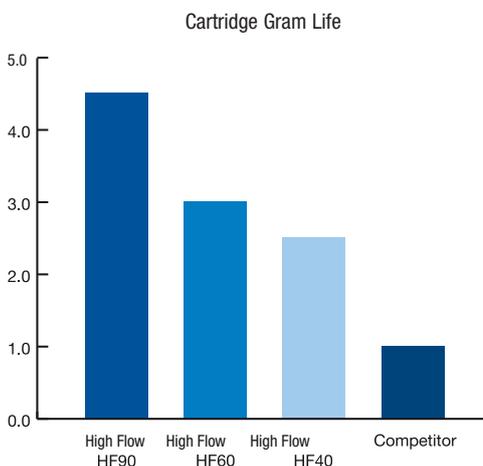
Enhanced High Flow filters have nearly 6 times the surface area for improved sediment filtration, reduced pressure drop and longer cartridge life.

Surface Area

Enhanced High Flow filters have nearly 6 times the surface area for improved sediment filtration, reduced pressure drop and longer cartridge life.

Cartridge Throughput

New Enhanced High Flow cartridges with Integrated Membrane Pre-Activated Carbon Technology (“IMPACT”) show higher throughputs and longer lifetimes. In side-to-side tests conducted with a surrogate plugging agent to a 25% loss in flow rate, a single HF90 cartridge averaged over 4.5 times the sediment holding capacity of competitive cartridges.



¹ NSF Standard 53

² Measured with *E.coli*.

Chlorine Capacities

The high chlorine taste and odor capacities* for High Flow cartridge filters with Integrated Membrane Pre-Activated Carbon Technology (“IMPACT”) help assure that a single HF90 cartridge out-performs a four-cartridge system from our competitor**.

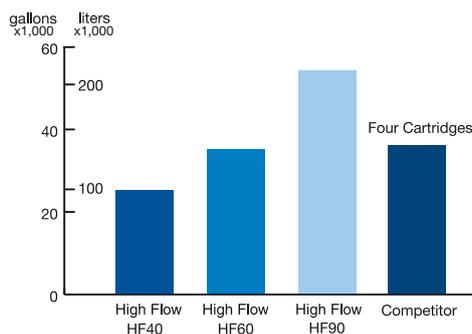
* at an average of 96+% reduction

** 4 Competitor cartridges each with 9,000 Gal. (34,000 Lit.) chlorine capacity

Nylon-Membrane Bacterial Reduction

Bacteria	Percent Reduction Achieved
E.coli	>99.9989
P. fluorescens	>99.9999

Testing results for cartridge filters with 10 square feet (0.93 square meters) of pleated 3M Water Filtration Products High Flow Series nylon membrane challenged with 10 liters of water containing organisms at >105 cfu/ml.



Cartridge Cutaway

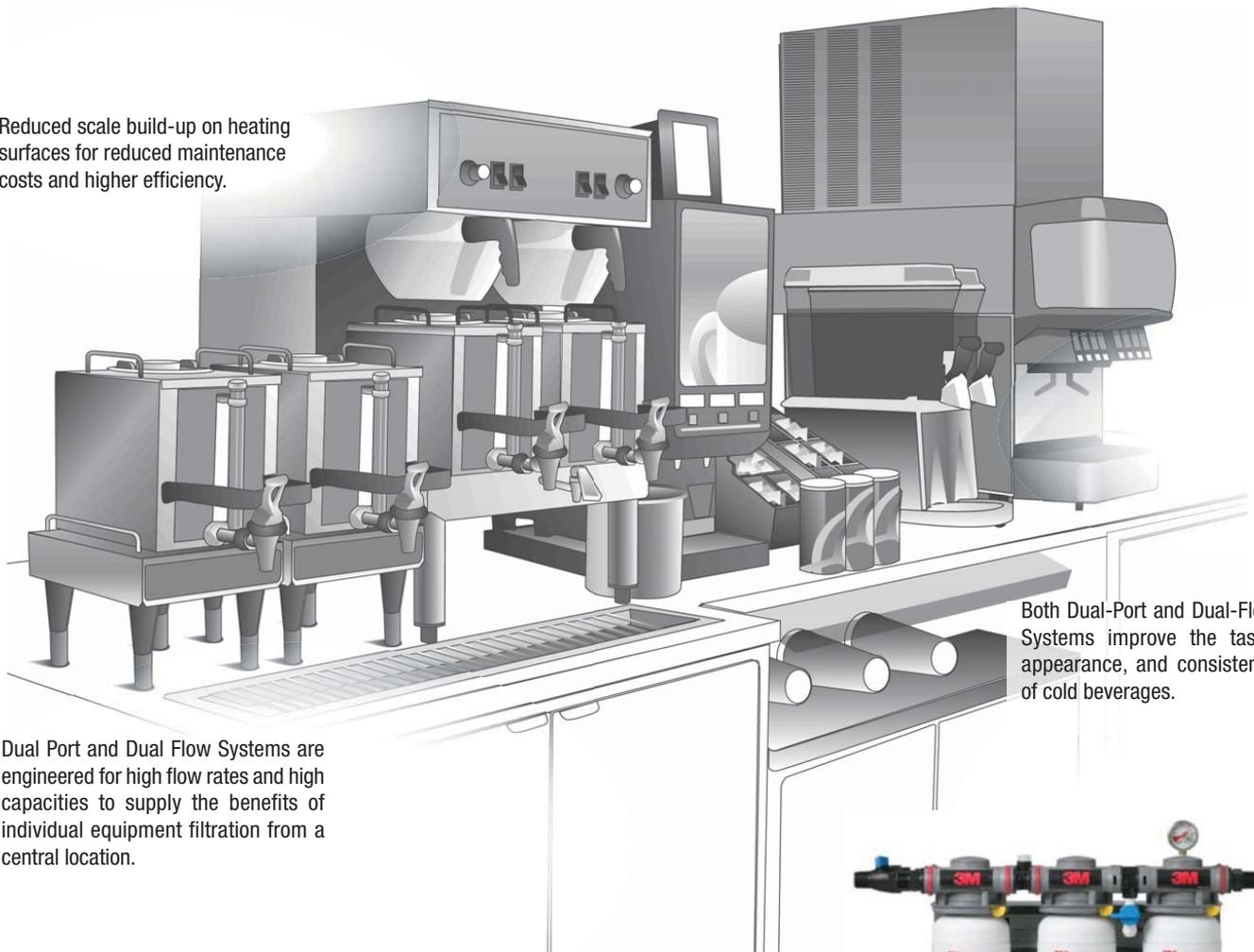
- 1 Rugged polypropylene design.
- 2 Pleated membrane design helps provide cyst and bacteria protection and superior sediment holding capabilities with minimal pressure drop.
- 3 Carbon block technology has more than four times the chlorine taste and odor capacity of our competitor. Also features bacteria inhibition agent for improve hygiene.
- 4 Enhanced pleated membrane has 4 times the surface area of our competitor
- 5 Enhanced cartridges feature a 5 micron pre-filter wrap.



High Flow Systems for Multiple Applications

Reduced sediment and scale on ice machine evaporator plates decreases maintenance costs. Dual-Port Systems reduce chlorine taste and odor; Dual-Flow Systems inhibit biofilm growth by allowing chlorinated water to flow to the ice machine.

Reduced scale build-up on heating surfaces for reduced maintenance costs and higher efficiency.



Both Dual-Port and Dual-Flow Systems improve the taste, appearance, and consistency of cold beverages.

Dual Port and Dual Flow Systems are engineered for high flow rates and high capacities to supply the benefits of individual equipment filtration from a central location.

A central system is typically more economical and easier to install and service than dedicated systems.

For Recipe Quality Water™ to several pieces of equipment that require different water characteristics, use High Flow Dual Port and Dual Flow Manifolds. Integrated Membrane Pre-Activated Carbon Technology (“IMPACT”) systems offer cyst and bacteria reduction.

Dual Flow Systems

Two separate streams exit the High-Flow manifold. The first stream supplies cold beverage applications and is filtered for reduced sediment, chlorine taste and odor, chloramine and carries no scale-inhibition media.

The second stream carries scale-inhibition media filtered to reduce sediment, providing the ice machine with chlorinated water for biofilm control.



DF290

High Flow Dual-Port Sizing

System Model*	Number of Cartridges	Flow Rate
DP190	1	18.9 lpm
DP390	3	57.8 lpm

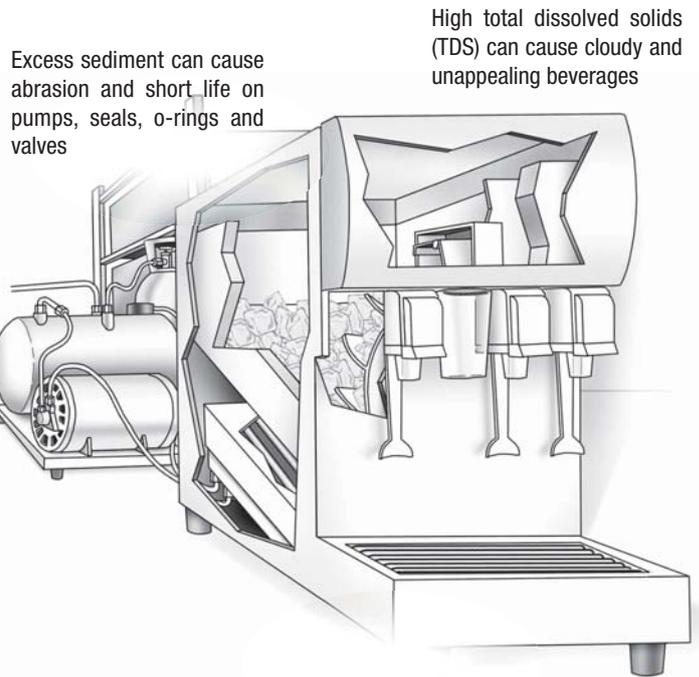
Cold Beverage with Water Filtration High Flow Systems

Cold beverages are often the most profitable part of convenience stores, restaurants and quick-service operations. For these high-volume cold beverage applications, High Flow filters deliver enough Recipe Quality Water™ to make more than 432,000 soft drinks (473ml drinks in a 650ml cup) with a single cartridge. High Flow cartridge filters deliver the improved performance of **Integrated Membrane Pre-Activated Carbon Technology** (“IMPACT”).

A single cartridge High Flow system replaces three- or four-cartridge manifolds, lowering capital and operating costs.

For Beverage Water, 3M High Flow Filtration Provides:

- Reduced sediment and chlorine taste and odor for cold beverage quality, consistency and customer satisfaction.
- Reduced sediment and abrasive hard particles to help extend the life of pumps, valves, o-rings, and seals.
- Reduced numbers of microorganisms, and water-borne bacteria such as E.coli. (Depends upon model)



Part Number Table

Model	Part Number	Micron	Scale	Flow Rate	Carbonator Dispenser	Capacity
HF45S Triple Action	70020121425	3	Yes	7.9 lpm	Single High Flow	94,635L
HF40 Double Action Sub micron cartridge	70020020114	0.2	No	7.9 lpm	Single High Flow	94,635L
HF65S Triple Action Cartridge	70020020130	3	Yes	12.6 lpm	Double Head	132,000L
HF60 Double Action Sub micron cartridge	70020020122	0.2	No	12.6 lpm	Double Head	132,000L
HF95S Triple Action Cartridge	70020121433	3	Yes	18.9 lpm	Upto 20 lpm	204,000L
HF90 Double Action Sub Micron Cartridge	70020020155	0.2	No	18.9 lpm	Upto 20 lpm	204,000L
NH3 - Non Valved High Flow Head	70020144310	Sold separately				
Pressure Gauge	70020251206					

Larger Systems

Dual and Triple-Manifold systems are available for larger flow requirements. Please contact your 3M Cuno representative.

- All systems deliver reduction of sediment and chlorine, taste & odor.
- All cartridges include **Integrated Membrane Pre-Activated Carbon Technology** (“IMPACT”) media for cyst and bacteria reduction.



High Flow Systems Ice Filtration Systems

The ice machine is the backbone of the foodservice industry. Whether it's serving drinks or keeping food fresh, large amounts of ice are key to quality service. If you're looking for cleaner, clearer, consistently great tasting ice — with reduced Cryptosporidium and Giardia cysts (per NSF Standard 53) and water-borne bacteria such as E.coli — look no further than 3M Water Filtration Products and 3M High Flow Series Systems

High Flow Filters for Ice Offer:

- Reduced sediment and chlorine taste and odor for cleaner ice taste, clarity, consistency and customer satisfaction.
- Reduced chlorine taste and odor helps prevent the effects of chlorine corrosion of metal surfaces.
- Reduced sediment and abrasive hard particles help extend the life of pumps, valves, o-rings and seals.
- Reduced downtime and service calls with the built-in delivery of a scale inhibitor to reduce the ability of calcium and magnesium to precipitate on the evaporator plates as hard scale.
- Integrated **Membrane Pre-Activated Carbon Technology** (“IMPACT”) media packages result in the reduction of microorganisms, including Cryptosporidium and Giardia cysts (per NSF Standard 53) and water-borne bacteria such as E.coli. Membrane-cartridge challenge testing with P.fluorescence and E.coli demonstrated over 99.99% reductions of both organisms.
- All systems deliver reduction of sediment and chlorine taste & odor.
- Size 40, 60 and 90 cartridges include **Integrated Membrane Pre-Activated Carbon Technology** (“IMPACT”) media for cyst and bacteria reduction.

Part Number Table

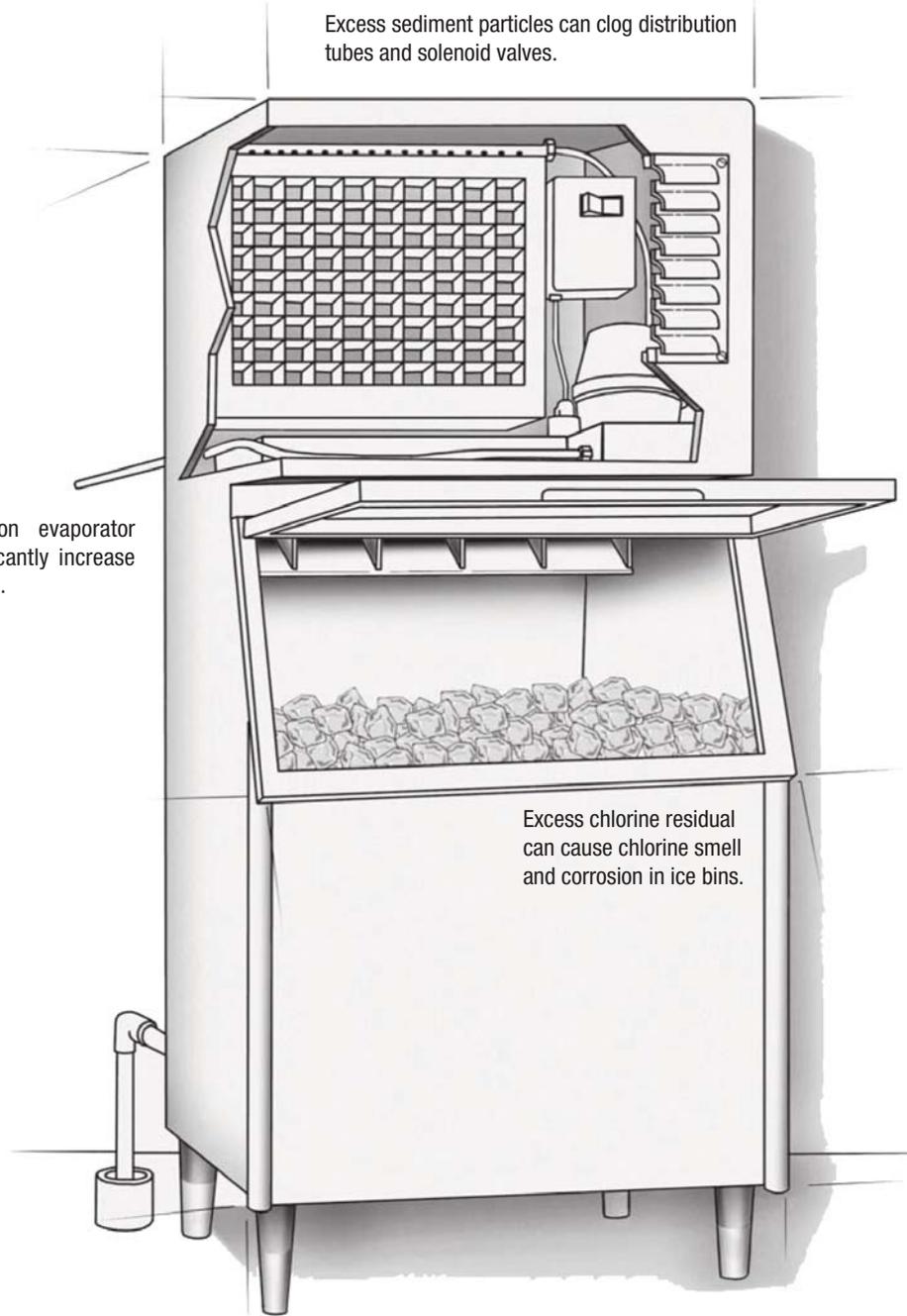
Model	Part Number	Micron	Scale	Flow Rate	High Flow Cubers kgs to	Low Flow kgs to	Flakers kgs	Capacity
HF27S Triple Action Cartridge	70020201995	5	Yes	5.7 lpm	91	340	544	18,000L
HF25 Double Action Sub micron Cartridge	70020020619	1	No	5.7 lpm	91	340	544	18,000L
HF45S Triple Action	70020121425	3	Yes	7.9 lpm	270	450	800	94,635L
HF40 Double Action Sub micron cartridge	70020020114	0.2	No	7.9 lpm	270	450	800	94,635L
HF65S Triple Action Cartridge	70020020130	3	Yes	12.6 lpm	450	650	1000	132,000L
HF60 Double Action Sub micron cartridge	70020020122	0.2	No	12.6 lpm	450	650	1000	132,000L
HF95S Triple Action Cartridge	70020121433	3	Yes	18.9 lpm	450	650	1000	204,000L
HF90 Double Action Sub Micron Cartridge NH3 - Non Valved	70020020155	0.2	No	18.9 lpm	450	650	1000	204,000L
NH3 - Non Valved High Flow Head	70020144310	Sold separately						
Pressure Gauge	70020251206							



HF90

Larger Systems

Dual and Triple-Manifold systems are available for larger flow requirements. Please contact your 3M Cuno representative.



Excess sediment particles can clog distribution tubes and solenoid valves.

Scale build-up on evaporator plates can significantly increase maintenance costs.

Excess chlorine residual can cause chlorine smell and corrosion in ice bins.





for Dedicated Systems Coffee, Tea and Espresso

3M Water Filtration Products High Flow Series filters for hot beverage applications reduce excess chlorine taste and odor, sediment and organic residuals that cause bitter tasting coffee, espresso or tea and clog spray heads. If not filtered these residuals can wreak havoc on your equipment and lead to expensive replacement costs.

When scale build-up is an issue, High Flow Systems add scale inhibitors to help prevent the precipitation of calcium and magnesium that can significantly decrease efficiency and increase maintenance costs.

High Flow ScaleGARD™ Pro (SGP) systems reduce calcium and magnesium ions by ion exchange for crystal clear iced tea and for perfect bean extraction for espresso and espresso-based beverages.

Turn to 3M Water Filtration Products for superior flavour, consistency and customer satisfaction.

Systems For Coffee, Tea And Espresso:

- Triple Action systems add scale inhibitors for improved scale reduction.
- ScaleGard Pro systems soften water for espresso without the need for a drain, electrical connections, or salt regeneration.
- Incorporate a valve-in-head design and Sanitary Quick Change cartridge convenience for fast and easy cartridge change-outs. Inlet water is turned off automatically when the cartridge is replaced.

Part Number Table

Softening Cartridges

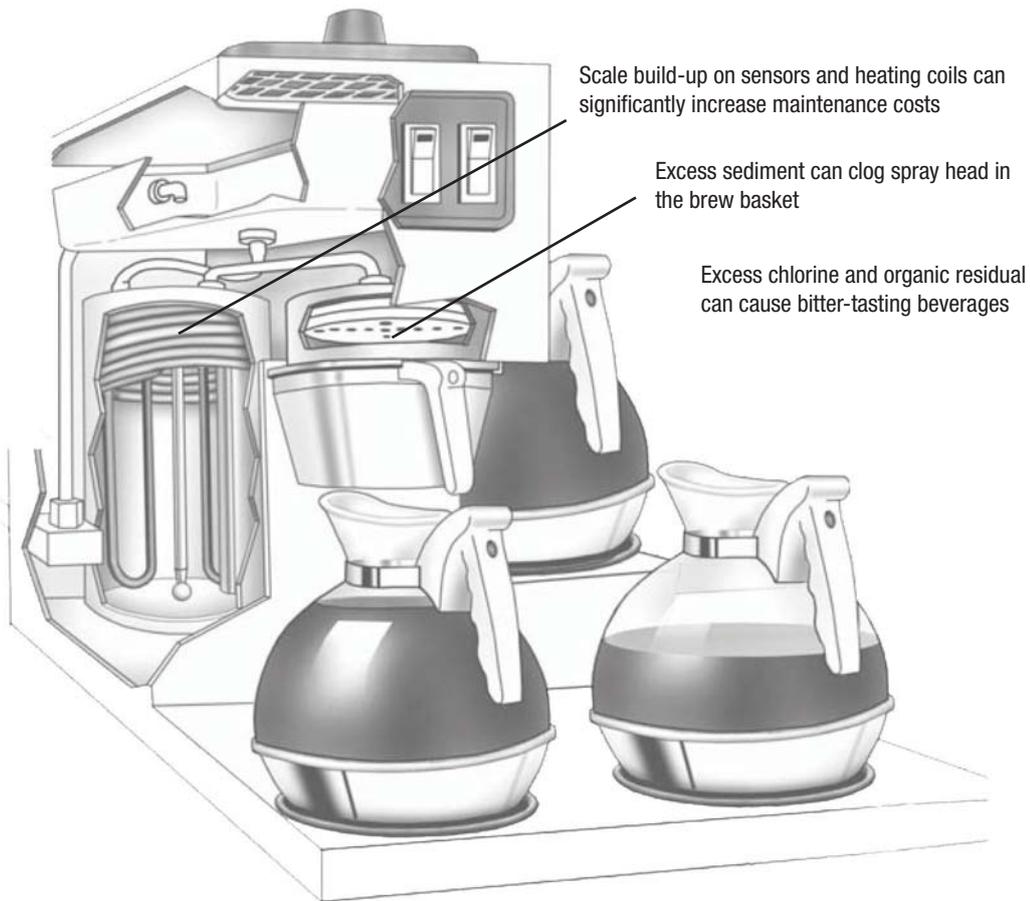
Resin Type	Model	Part Number	Flow Rate	Capacity
SAC	SGP124BN	70020019876	1.9 lpm	1,900 litres @ 150ppm
WAC	SGP165BN	70020020692	3.8 lpm	2,722 litres @ 150ppm
WAC	SGP195BN-T	70020020544	3.8 lpm	4,542 litres @ 150ppm

Triple Action Cartridges

Model	Part Number	Micron	Scale	LPM	Kgs of Coffee	Capacity
HF15-MS	70020044320	5	Yes	3.8	1,325	13,200L
HF27-MS	70020201995	5	Yes	3.8	1,810	18,100L

Accessories

VH3 - High Flow Valved Head	70020021120	Sold separately
Pressure Gauge	70020251206	



Scale build-up on sensors and heating coils can significantly increase maintenance costs

Excess sediment can clog spray head in the brew basket

Excess chlorine and organic residual can cause bitter-tasting beverages



High Flow Systems Combi Ovens

Filtration System Application

Steam equipment is one of the most expensive pieces of equipment to maintain in a commercial kitchen. Failures are mostly due to poor water quality.

Heating water accelerates the precipitation of scale forming salts in food service equipment. Particulate matter, corrosive chlorine and scale can all be greatly reduced by using Cuno Food Service filter systems.

The correct application of Cuno Food Service filter systems will reduce costs and unnecessary maintenance of your valuable equipment.

The Problem:

- Scale build-up increases energy consumption
- Shards of scale can block blow-down drains
- Scale build-up can cause excess service calls and increase operational expenses

The Challenge:

Eliminating scale build-up or reducing it to the point where normal servicing schedules can be maintained.

The Solution

Cuno Food Service products provide built-in scale inhibition as well as chlorine and sediment reduction. Reduced service calls and reduced downtime increase bottom line profitability.

Part Number Table

Good to Average Water

Resin Type	Part Number	Micron	Scale	LPM	Capacity
HF45S Triple Action Filter	70020121425	3	Yes	7.9 lpm	94,635 litres
HF65S Triple Action Filter	70020020130	3	Yes	12.6 lpm	132,000 litres

Hard Water

Model	Part Number	Flow Rate	Capacity
SGP195BN-T	70020020544	3.8 lpm	4,542 litres @ 150ppm

Water that is very hard or high TDS

Model	Part Number	Reduction Claims	Capacity
TFS450-40*	70020236124	Approx 90% TDS reduction	1,136 Lpd**

Replacement Cartridges

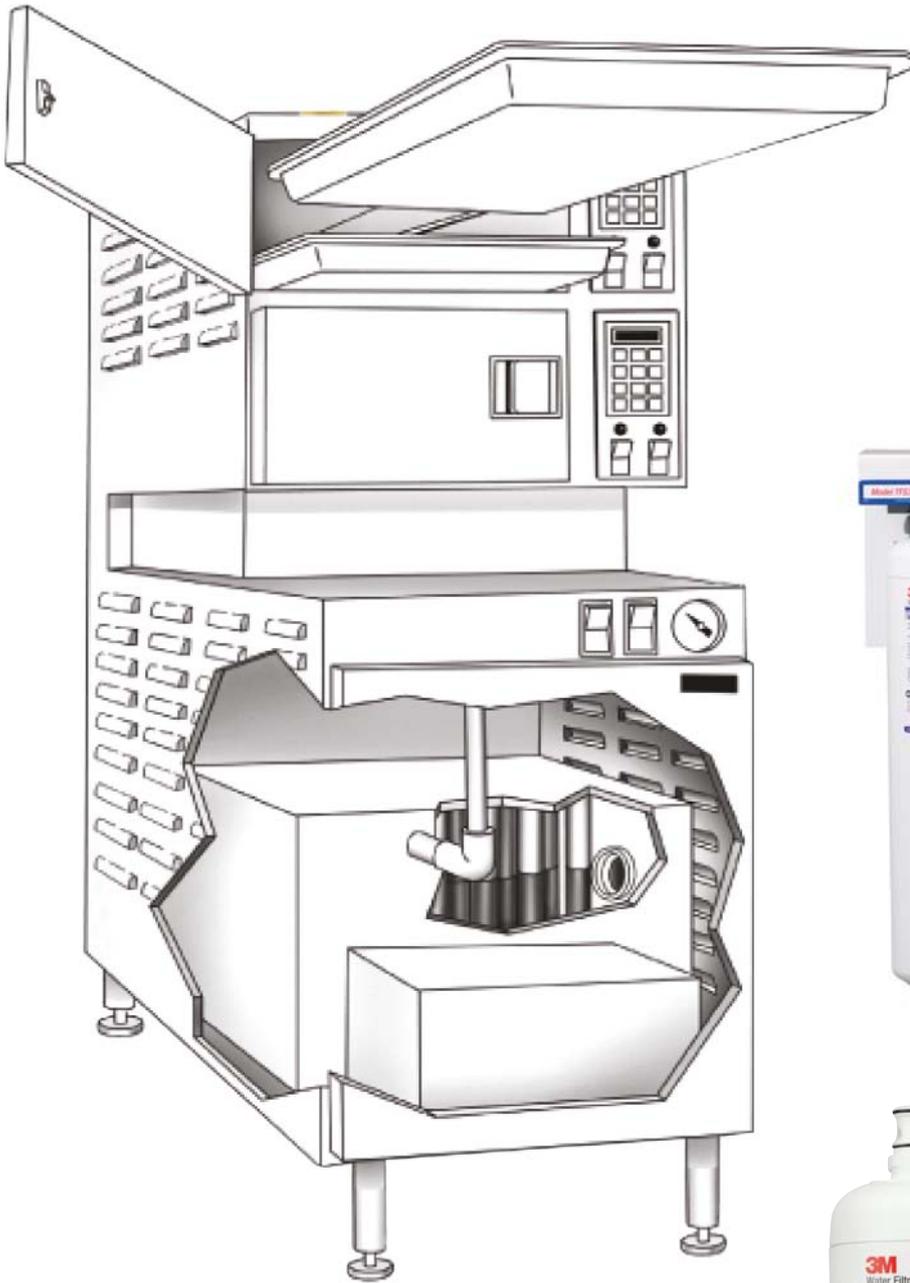
Model	Function	Part Number	Numbered required
HF40	Pre and Post Filters	70020020114	2
TFS450 Membranes	Membrane	70020015013	2

Accessories

NH3 - Non Valved High Flow Head	70020144310	Sold separately
Pressure Gauge	70020251206	

* This Model includes a 151litre tank

** This capacity if unblended. If blended Capacity/Conversion is at 25°C to atmosphere without blending. With blending the system production rate is approximately doubled and the maximum outlet water Total Dissolved Solids (TDS) is about 50% of inlet water TDS. Minimum 70 psi (482.6 kPa) pressure required





Recipe Quality Water™

For more information or technical assistance, phone

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