

3M™ Water Filtration Products
High Flow Series



3M

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 5 gallons per minute (18.9 lpm) and accomplishes what was previously the job of a three- or four-cartridge system. No activation steps are required, and, for most water, no pre-filter is needed. 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.



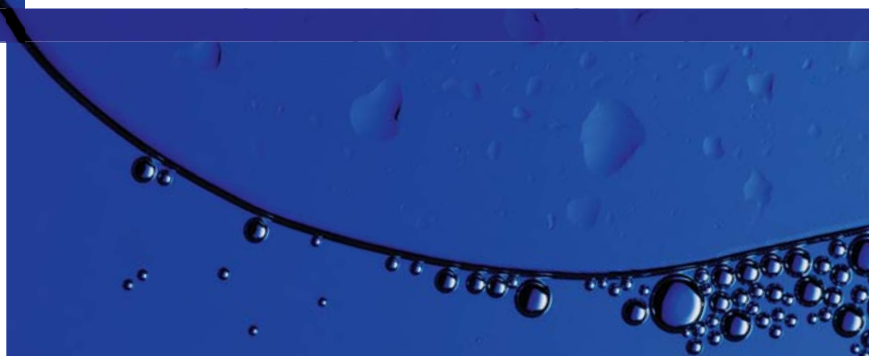
The High Flow Series Provides

Economy	<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. • No need for a separate prefilter.
Ease	<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.
Certification	<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. • No exposure to contaminated media.
Performance	<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*.

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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 through-put and cartridge life, the 3M™ Water Filtration Products 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, chain, fast food and convenience store operators, supermarkets, cafeterias, and institutions.

For cold, hot, and specialty beverages, ice, or any combination of applications, 3M 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.

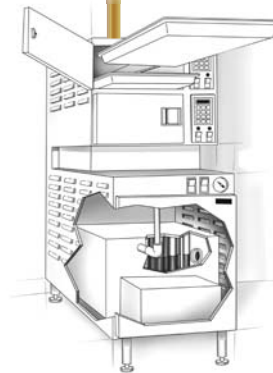


Water Source

For central systems serving multiple applications, go to pages 8 and 9

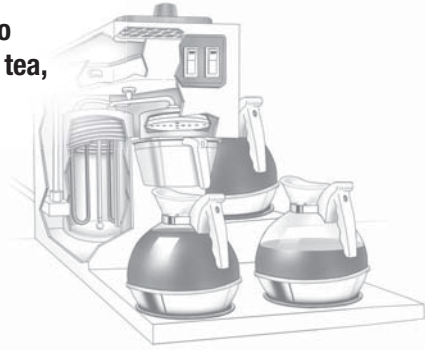
For systems dedicated to the improved taste, appearance, and consistency of cold beverages, go to pages 10 and 11.

For scale reduction applications, go to page 15.



Steamer

For systems dedicated to great tasting coffee and tea, go to pages 14 and 15.



Coffee Brewer

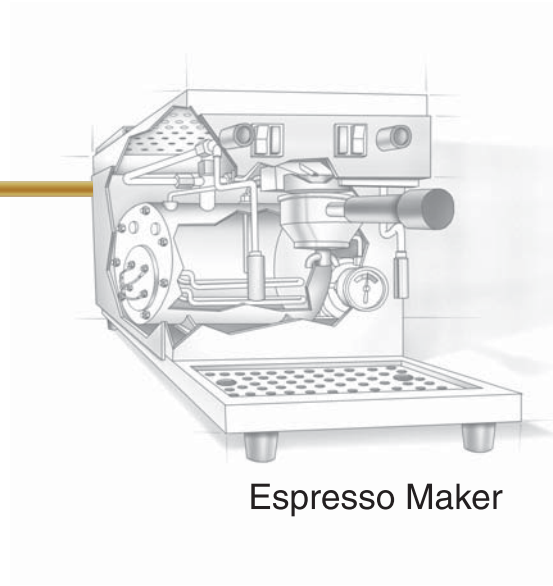
Scale Inhibited Water

For systems dedicated to cleaner, consistent, great-tasting ice, go to pages 12 and 13.

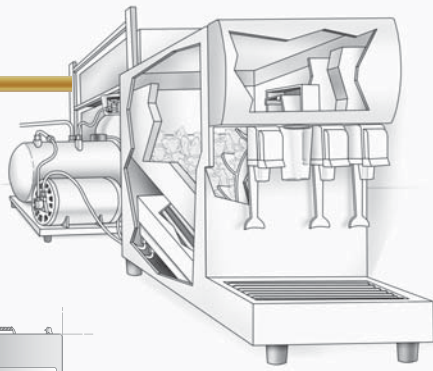


Ice Machine

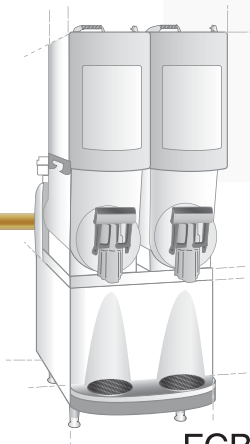
For systems dedicated to great tasting espresso and iced tea, go to pages 14 and 15.



Espresso Maker



Post Mix



FCB Machine



Iced Tea Machine



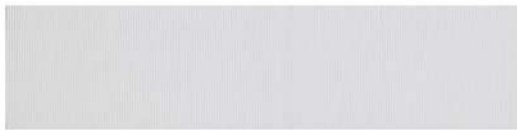
3M™ Water Filtration Products High Flow Series uses revolutionary **Integrated Membrane Pre-Activated Carbon Technology** (“IMPACT”) for superior cartridge life and economy. A single filter can accomplish what was previously the job of a three- or four-cartridge system.

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 *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.

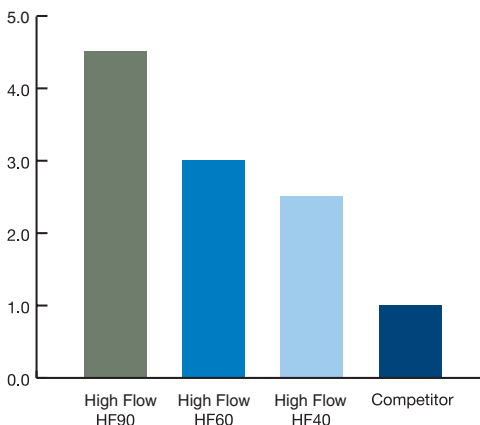


Enhanced High Flow HF90 Cartridge Bacteria Membrane

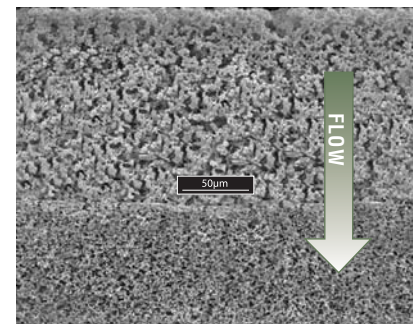
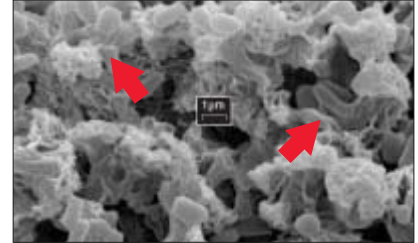


Competitor

Cartridge Gram Life



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



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

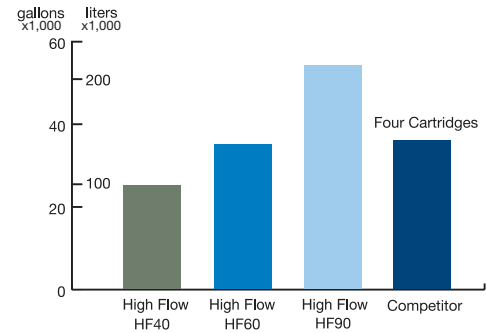
2 Measured with *E.coli*.

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 $>10^5$ cfu/ml.

Cartridge Cutaway

- ❶ Rugged polypropylene design.
- ❷ Pleated membrane design helps provide cyst and bacteria protection and superior sediment holding capabilities with minimal pressure drop.
- ❸ Carbon block technology has more than four times the chlorine taste and odor capacity of competitor. Also features bacteria inhibition agent for improved hygiene.
- ❹ New enhanced pleated membrane has 6 times the surface area of competitor (see Surface Area diagram).
- ❺ New enhanced cartridges feature a 5 micron pre-filter wrap.



High Flow Systems for Multiple Applications

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 Port Systems

Two separate streams exit the High Flow system manifold providing reduced sediment and chlorine taste and odor.

One stream supplies cold-beverage dispensers.

Proportionately-dosed scale-inhibition media is added to the second stream from a dedicated HF8-S cartridge to reduce the ability of calcium and magnesium to precipitate as hard scale on the evaporator plates of an ice machine and/or the heating coils of a coffee brewer.



DP290

Dual Flow Systems

Two separate streams exit the High-Flow manifold.

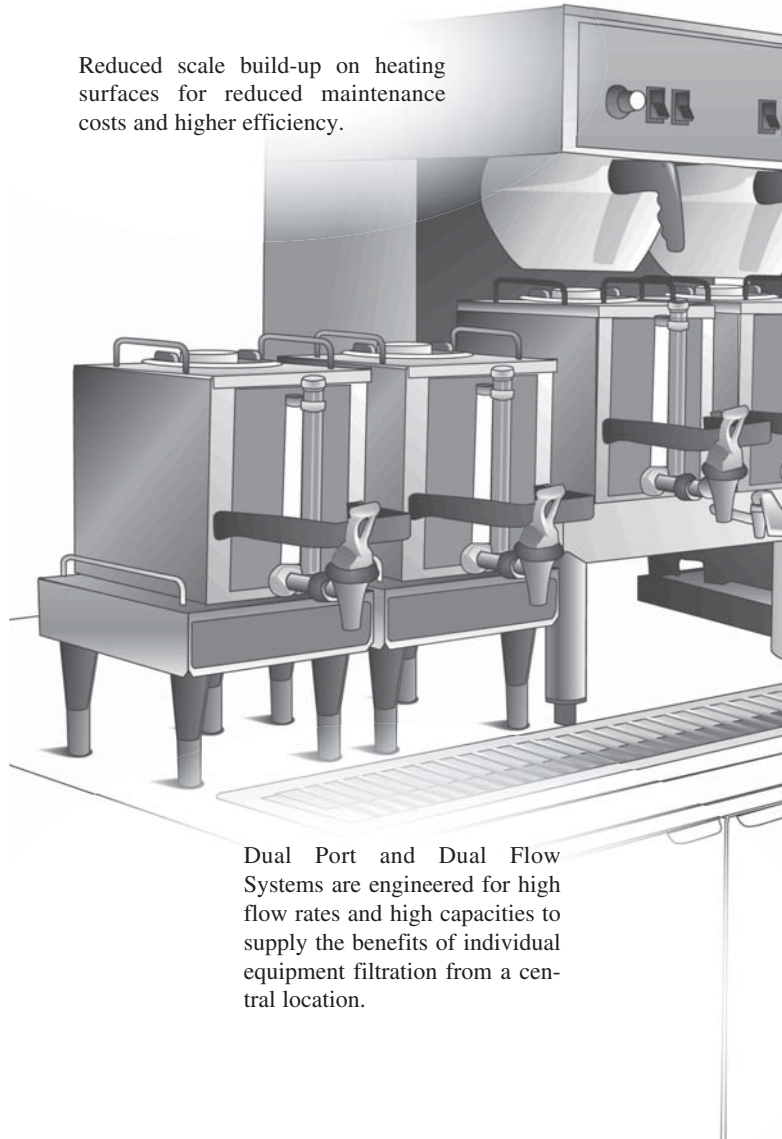
The first stream supplies cold beverage applications and is filtered for reduced sediment, chlorine taste and odor, chloramine and carries no scale-inhibition media.

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

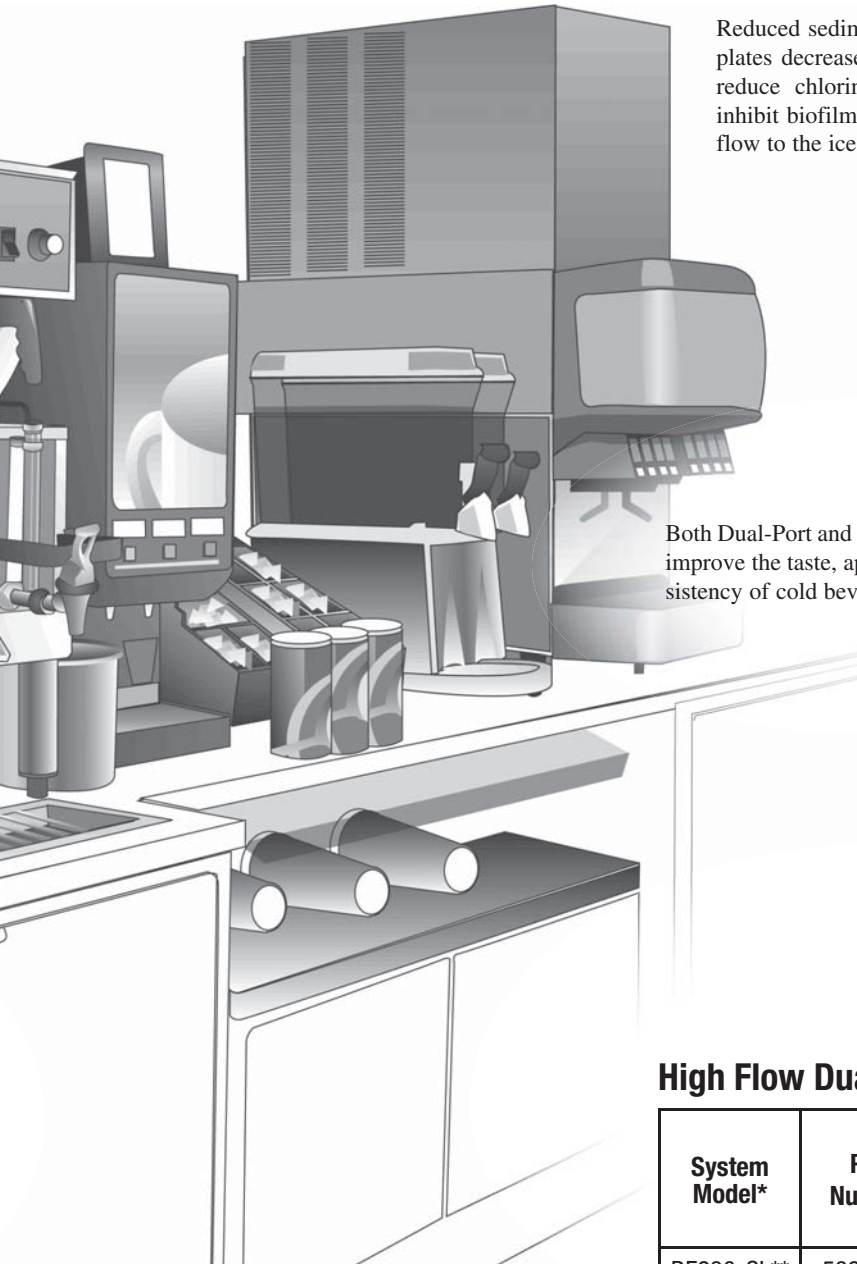


DF290-CL

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



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.



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.

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

High Flow Dual-Port Sizing

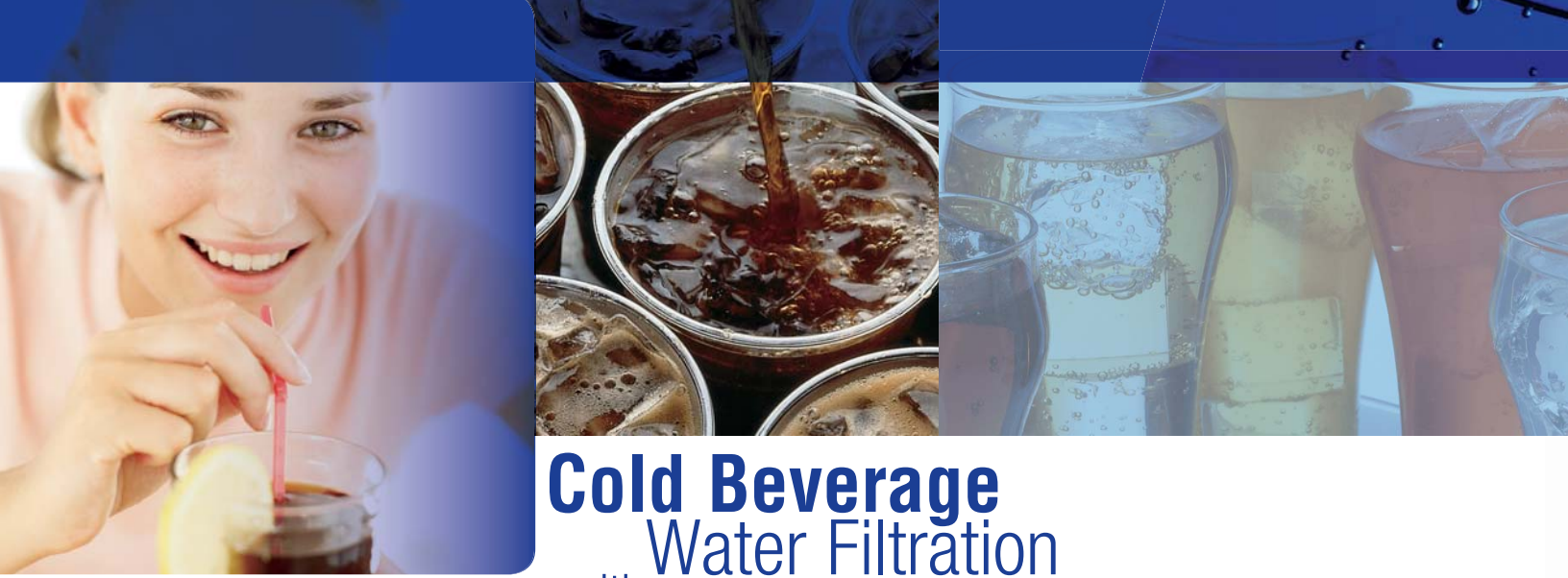
System Model*	Part Number	Number of Cartridges	Flow Rate gal/min (lit/min)
DP190	56243-01	1	5 (18.9)
DP290	56242-01	2	10 (37.8)
DP390	56241-02	3	15 (57.8)

High Flow Dual-Flow Sizing

System Model*	Part Number	Number of Beverage Cartridges	Number of Ice Machine Cartridges	Beverage Flow gal/min (lit/min)	Ice-Machine Flow gal/min (lit/min)
DF290-CL**	56236-01	2	1	2.66 (10.2)	5 (18.9)

* System offers cyst and bacteria reduction with Integrated Membrane Pre-Activated Carbon Technology ("IMPACT") media
 ** The carbon in DF290-CL reduces chloramine and chlorine





Cold Beverage Water Filtration with 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 (16 oz. soft drinks in 22 oz. cups) with a single cartridge. High Flow cartridge filters deliver the improved performance of Integrated Membrane Pre-Activated Carbon Technology (“IMPACT”) media.

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

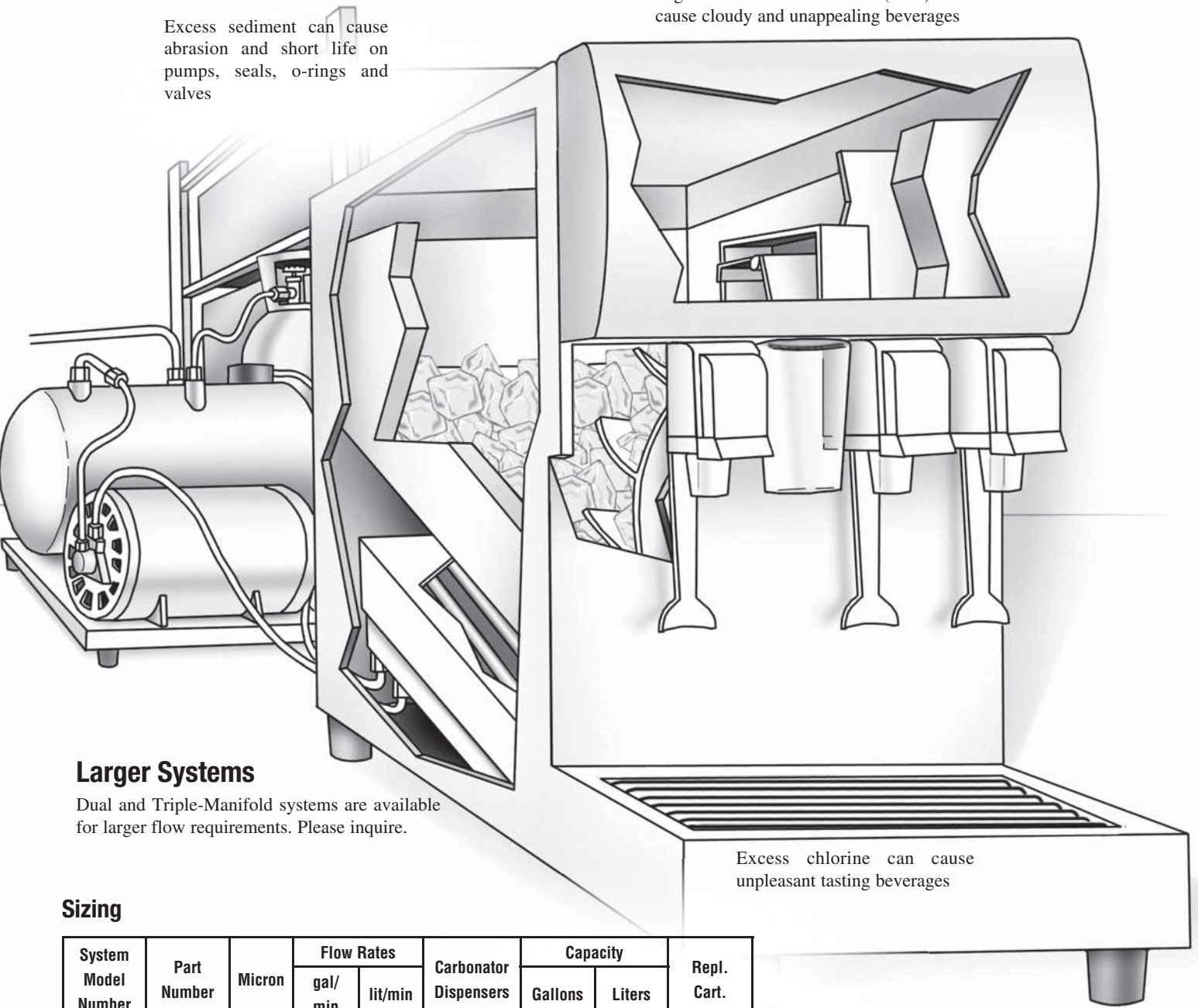
For Beverage Water, High Flow Filtration Provides:

- 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, including Cryptosporidium and Giardia cysts (per NSF Standard 53) and water-borne bacteria such as E.coli. (Depends upon model)
- Virtually no need for an additional pre-filter with High Flow Systems.



High total dissolved solids (TDS) can cause cloudy and unappealing beverages

Excess sediment can cause abrasion and short life on pumps, seals, o-rings and valves



Excess chlorine can cause unpleasant tasting beverages

Larger Systems

Dual and Triple-Manifold systems are available for larger flow requirements. Please inquire.

Sizing

System Model Number	Part Number	Micron	Flow Rates		Carbonator Dispensers	Capacity		Repl. Cart.
			gal/min	lit/min		Gallons	Liters	
BEV130	56161-01	0.5	1.67	6.3	Single	14,000	53,000	HF30 56151-05
BEV135	56161-02	1.0	1.67	6.3	Single	12,600	48,000	HF35 56152-05
BEV140	56162-01	0.2	2.1	7.9	Single High Flow	25,000	95,000	HF40 56133-03
BEV145	56162-02	3.0	2.1	7.9	Single High Flow	25,000	95,000	HF45 56133-07
BEV160	56163-01	0.2	3.34	12.6	Double/Two	35,000	132,000	HF60 56134-03
BEV165	56163-02	3.0	3.34	12.6	Double/Two	35,000	132,000	HF65 56134-07
BEV190	56164-01	0.2	5.0	18.9	Up to 5 gal/min	54,000	204,000	HF90 56135-03
BEV195	56164-02	3.0	5.0	18.9	Up to 5 gal/min	54,000	204,000	HF95 56135-07

- All systems deliver reduction of sediment and chlorine taste & odor
- BEV130/135 contain carbon-block media only
- BEV140, BEV160, BEV190 systems include Integrated Membrane Pre-Activated Carbon Technology (“IMPACT”) media for cyst and bacteria reduction.
- For higher turbidity waters, the media in BEV135, BEV145, BEV165 and BEV195 systems are specially designed to provide cartridge and system life, but not cyst or 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 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 in Models ICE140, 160 and 190 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.
- No need for a separate pre-filter.



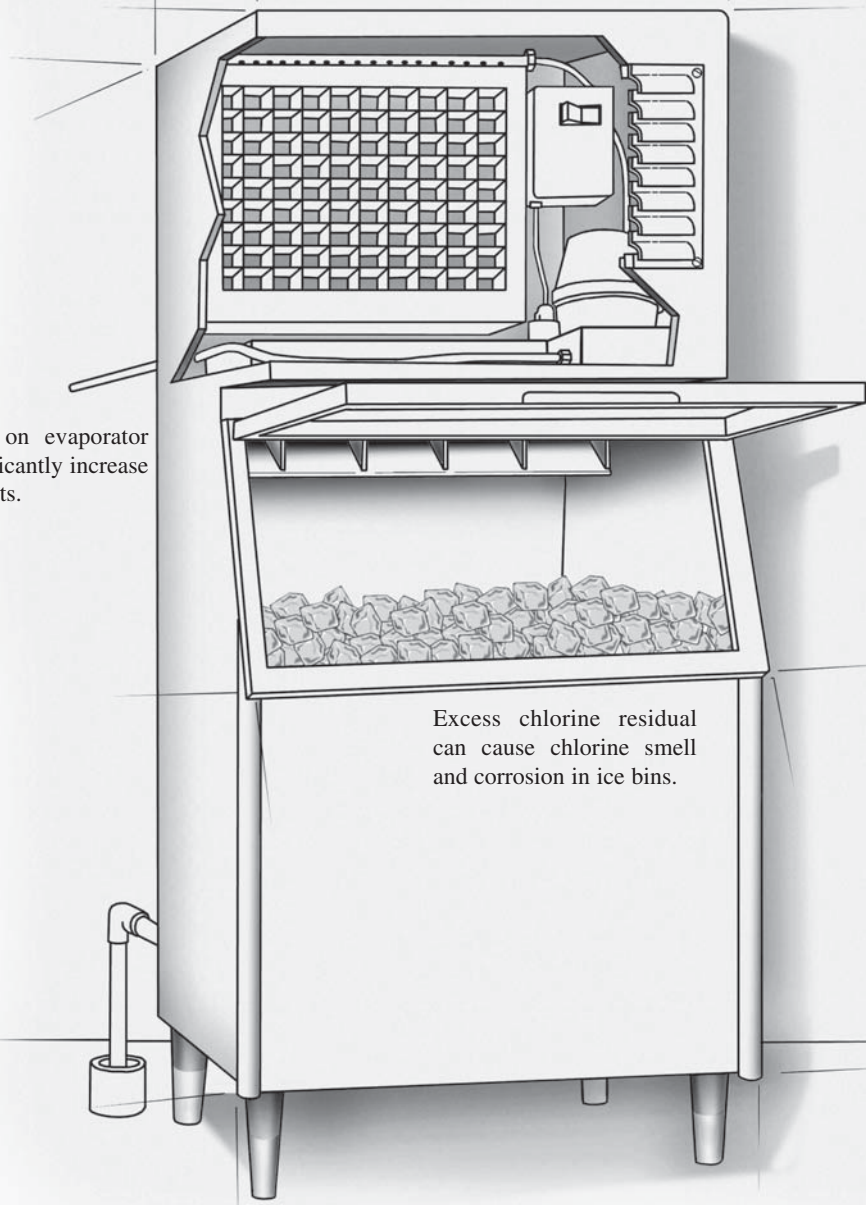
ICE190-S

Sizing

System Model Number	Part Number	Micron	Flow Rates		High Flow Cubers Pounds (Kg) To	Low Flow Cubers Pounds (Kg) To	Flakers Pounds (Kg) To	Capacity		Repl. Cart.
			gal/min	lit/min				Gallons	Liters	
ICE120-S	56160-03	0.5	1.5	5.7	200 (91)	750 (340)	1,200 (544)	9,000	34,000	HF20-S 56151-03
ICE125-S	56160-04	1.0	1.5	5.7	200 (91)	750 (340)	1,200 (544)	10,000	38,000	HF25-S 56152-03
ICE140-S	56162-03	0.2	2.1	7.9	600 (272)	1,000 (454)	1,800 (817)	25,000	95,000	HF40-S 56133-05
ICE145-S	56162-04	3.0	2.1	7.9	600 (272)	1,000 (454)	1,800 (817)	25,000	95,000	HF45-S 56133-09
ICE160-S	56163-03	0.2	3.34	12.6	1,000 (454)	1,450 (658)	2,400 (1,089)	35,000	132,000	HF60-S 56134-05
ICE165-S	56163-04	3.0	3.34	12.6	1,000 (454)	1,450 (658)	2,400 (1,089)	35,000	132,000	HF65-S 56134-09
ICE190-S	56164-03	0.2	5.0	18.9	>1,000 (454)	>1,450 (658)	>2,400 (1,089)	54,000	204,000	HF90-S 56135-05
ICE195-S	56164-04	3.0	5.0	18.9	>1,000 (454)	>1,450 (658)	>2,400 (1,089)	54,000	204,000	HF95-S 56135-09
ICE260-S	56245-03	0.2	6.68	25.3	2,400 (1089)	3,000 (1,361)	4,800 (2,177)	70,000	265,000	(2) HF60-S 56134-05
ICE265-S	56245-04	3.0	6.68	25.3	2,400 (1089)	3,000 (1,361)	4,800 (2,177)	70,000	265,000	(2) HF65-S 56134-09

- All systems deliver reduction of sediment and chlorine taste & odor
- ICE120-S and ICE125-S contain carbon-block media only
- ICE140-S, ICE160-S, ICE190-S and ICE260-S systems include **Integrated Membrane Pre-Activated Carbon Technology (“IMPACT”)** media for cyst and bacteria reduction.
- For higher turbidity waters, the media in ICE145-S, ICE165-S, ICE190-S and ICE260-S systems are specially designed to provide cartridge and system life, but not cyst or bacteria reduction.

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.

Larger Systems

Dual and Triple-Manifold systems are available for larger flow requirements. Please inquire.



ICE260-S





Dedicated Systems for 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 BREW Systems add scale inhibitors to help prevent the precipitation of calcium and magnesium that can significantly decrease efficiency and increase maintenance costs.

High Flow ESP and 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 flavor, consistency and customer satisfaction.

Systems For Coffee, Tea And Espresso:

- BREW systems add scale inhibitors for improved scale reduction.
- ESP and SGP 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.

SCALE

ScaleGard™ SF165 helps protect steamers, coffee brewers, and ice machines from the effects of scale formation at temperatures up to and exceeding 200°F (93°C). The SF18-S scale feeder carefully meters the right proportion of high-temperature scale inhibitor into water filtered through an 3M Water Filtration Products High Flow Series cartridge with Integrated Membrane Pre-Activated Carbon Technology (“IMPACT”) media. The SF18-S scale feeder may be purchased separately.



SF165

Systems And Sizing — Softening Cartridge Systems For Espresso

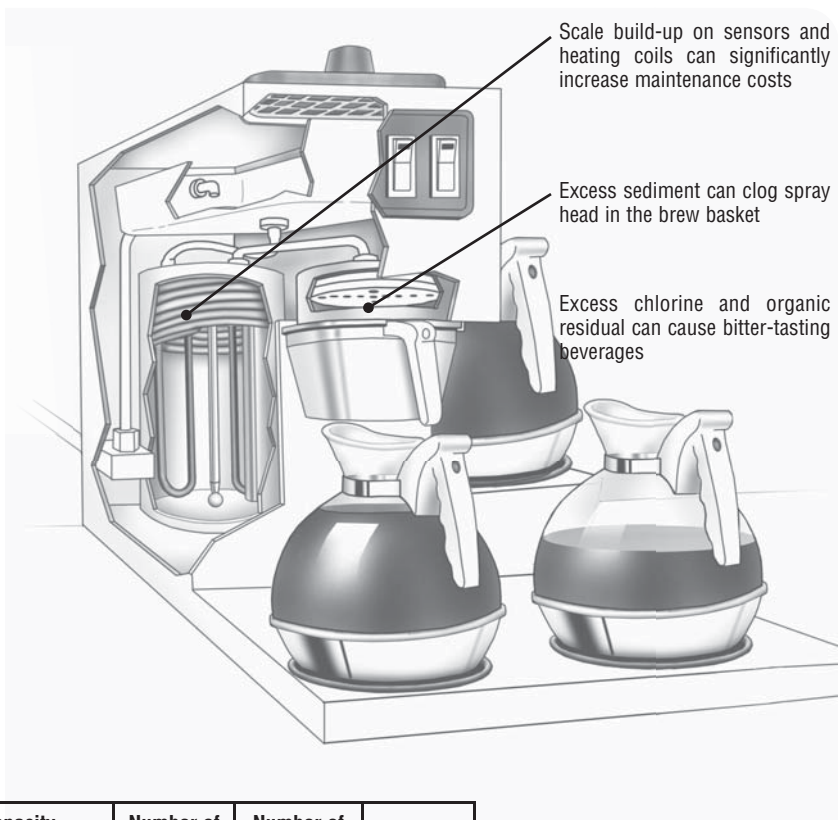
Resin Type	Model	Part Number	Flow Rate		Capacity ³ (grains of hardness)
			gpm	lpm	
SAC ¹	ESP114-T	56176-09	0.5	1.9	700
	ESP124-T	56176-10			1,100
WAC ²	SGP124BN-T	56176-03	0.5	1.9	4,440
WAC	SGP165BN-T	56176-01	1.0	3.8	6,470
WAC	SGP195BN-T	56176-02	1.0	3.8	10,800

• Inlet/outlet fittings are 3/8-inch FNPT

¹ Strong-acid (SAC) ion exchange cartridges reduce calcium and magnesium ions in the brewing water, replacing them with sodium ions for better-tasting espresso

² Weak-acid (WAC) ion-exchange cartridges replace positive ions (calcium and magnesium and others) in the brewing water with hydrogen ions. A 25% bypass is built-in.

³ To calculate capacities in gallons, divide the grain capacity by the hardness of the inlet water in grains per gallon or liter. WAC capacities are approximate, and throughputs need to be adjusted higher to account for the 25% bypass.



Systems And Sizing — Coffee And Tea¹

System Model Number	Part Number	Micron	Flow Rates		Capacity		Number of 1/2 Gal (2 liter) Pots	Number of 12 oz. (356 ml) Cups of Tea	Repl. Cart.
			gal/min	lit/min	Gallons	Liters			
BREW105-MS	62138-01	1.0	0.75	2.8	1,500	5,700	3,000	16,000	HF05-MS 56093-27
BREW110-MS	62138-03	0.5	1.0	3.8	3,500	13,200	7,000	37,000	HF10-MS 56093-29
BREW115-MS	62138-07	5.0	5.0	18.9	3,500	13,200	7,000	37,000	HF15-MS 56093-31
BREW120-MS	56160-01	0.5	1.5	5.7	9,000	34,000	18,000	96,000	HF20-MS 56151-09
BREW125-MS	56160-02	1.0	1.5	5.7	10,000	38,000	20,000	107,000	HF25-MS 56152-09
BREW130-MS	56161-03	0.5	1.67	6.3	14,000	53,000	28,000	150,000	HF30-MS 56151-11
BREW135-MS	56161-04	1.0	1.67	6.3	12,600	48,000	25,200	134,000	HF35-MS 56152-11

Systems And Sizing — Scale Reduction

Model	Part Number	Capacity		Flow Rate		Sizing
		gal	lit	gpm	lpm	
SF165	56246-01	35,000	132,000	3.34	12.6	Coffee Brewers, Ice Machines, and Steamers to Demand flow rates of 3.34 gpm (12.6 lpm)
SF18-S	56077-03	35,000	132,000	to 5	to 18.7	

• Periodic acid de-liming is recommended for steamer applications





Recipe
Quality
Water™