

3M™ Water Filtration Products
ScaleGARD™ HT SF165 including SF18-S



Superior Grade Scale Inhibition System
for High Temperature Water Applications



We've created a system to control scale formation in food service equipment.



AT-A-GLANCE

ScaleGARD™ HT SF165 combines chlorine taste and odor reduction with sediment reduction, and helps protect from the potentially harmful effects of scale formation on equipment at flow rates to 3.34 gpm (12.6 lpm) for 35,000 gallons (132,000 liters).

3M™ Water Filtration Products ScaleGARD HT SF165 assures consistent Recipe Quality Water™ with reduced sediment and chlorine taste and odor. The controlled and metered addition of scale inhibition reduces the ability of calcium and magnesium to form as hard scale in both high and low-temperature applications.¹

When filtered water is already available from a 3M Water Filtration Products Commercial system, the SF18-S scale feeder may be purchased and installed separately at the point of use. The SF18-S provides the same benefits, namely the controlled addition of scale inhibition to reduce the ability of calcium and magnesium to precipitate as hard scale. The model number, part number, and replacement cartridge for the SF18-S are listed in the Product Specification Table.

¹ Periodic acid de-liming of heating elements is recommended for steamer applications

Product Benefits

- Reduced sediment and chlorine for equipment protection and great tasting hot and cold beverages and ice.
- A passive-feed orifice carefully controls and meters the addition of a scale inhibitor to reduce scale build-up on evaporator plates and heating elements.
- Consistent performance at application temperatures over 200°F (93°C) [post-equipment].
- Revolutionary dual-zone filtration media combines a membrane in series with premium activated carbon to provide unsurpassed through put and cartridge life.
- SQC - Sanitary Quick Change - encapsulated cartridge design allows for fast and easy change-outs with a 1/4 turn while minimizing the possibility of leakage and media contamination.
- FDA CFR-21 and/or NSF compliant materials.
- 3/4" FNPT inlet and outlet ports allow direct or easily-adapt able connections to existing plumbing lines.
- System includes a pressure gauge, inlet shut-off valve, and outlet check valve for simple installation and operation.

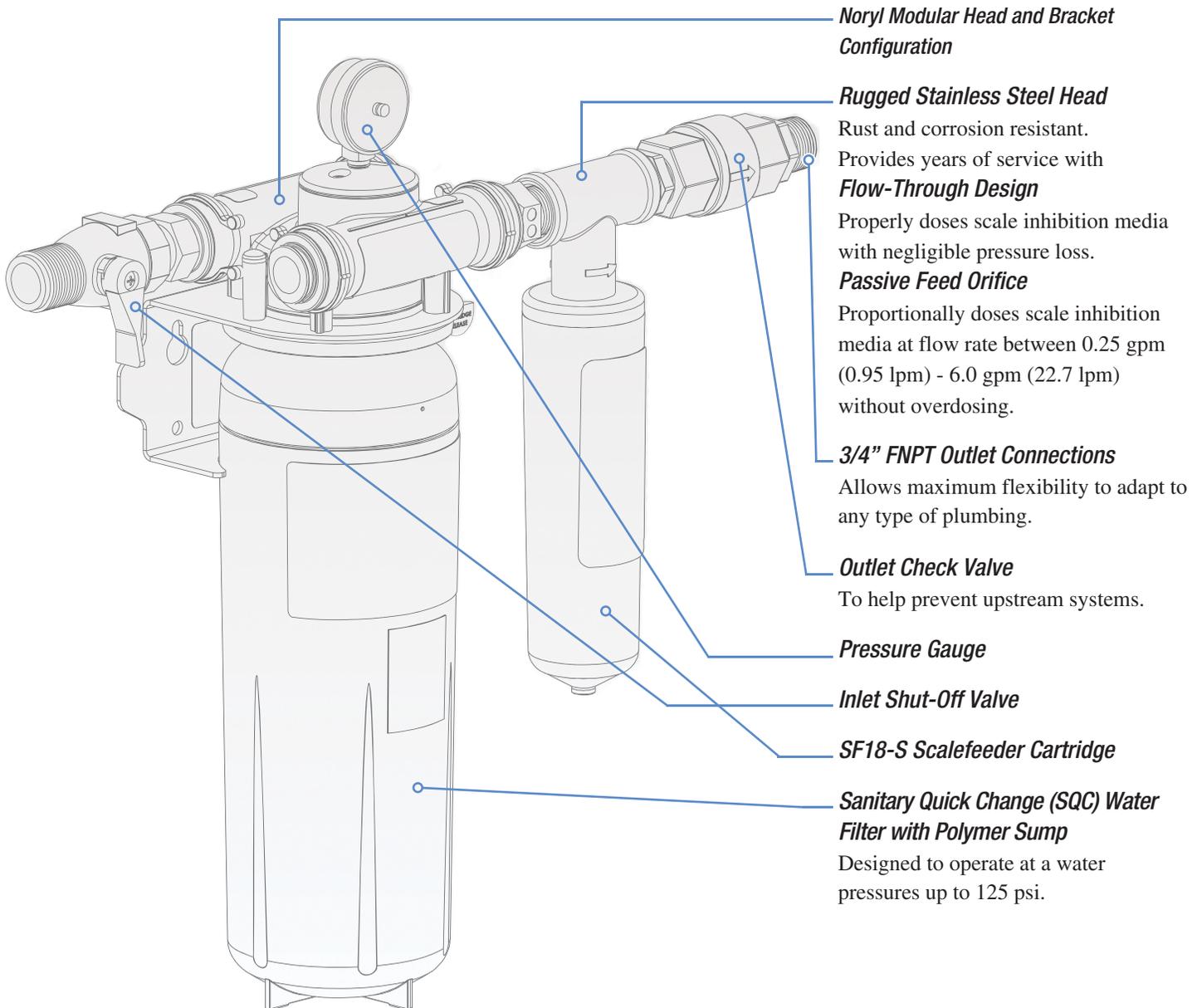
Product Specifications

Model Number	Part Number	Capacity	Service Flow Rate	Replacement Cartridge	Sizing
SF165	56246-01	35,000 gallons (132,000 liters)	3.34 gpm (12.6 lpm)	HF65 56134-07 HF8-S 55821-06 Cartpak 56138-06	Ice: Cubers to 1,200 lbs (544 kg); Flakers to 2,400 lbs (1,089 kg), Coffee Brewers and Steamers to demand flow rates of 3.34 gpm (12.6 lpm)
SF18-S	56077-03	70,000 gallons (265,000 liters)	3.34 gpm (12.6 lpm)	HF8-S 55821-06	



Scaled heating coils and boiler wall from a coffee brewer after 1,325 gallons of 25 grains per gallon untreated water.

ScaleGARD™ HT SF165 including SF18-S



Noryl Modular Head and Bracket Configuration

Rugged Stainless Steel Head

Rust and corrosion resistant.
Provides years of service with **Flow-Through Design**

Properly doses scale inhibition media with negligible pressure loss.

Passive Feed Orifice

Proportionally doses scale inhibition media at flow rate between 0.25 gpm (0.95 lpm) - 6.0 gpm (22.7 lpm) without overdosing.

3/4" FNPT Outlet Connections

Allows maximum flexibility to adapt to any type of plumbing.

Outlet Check Valve

To help prevent upstream systems.

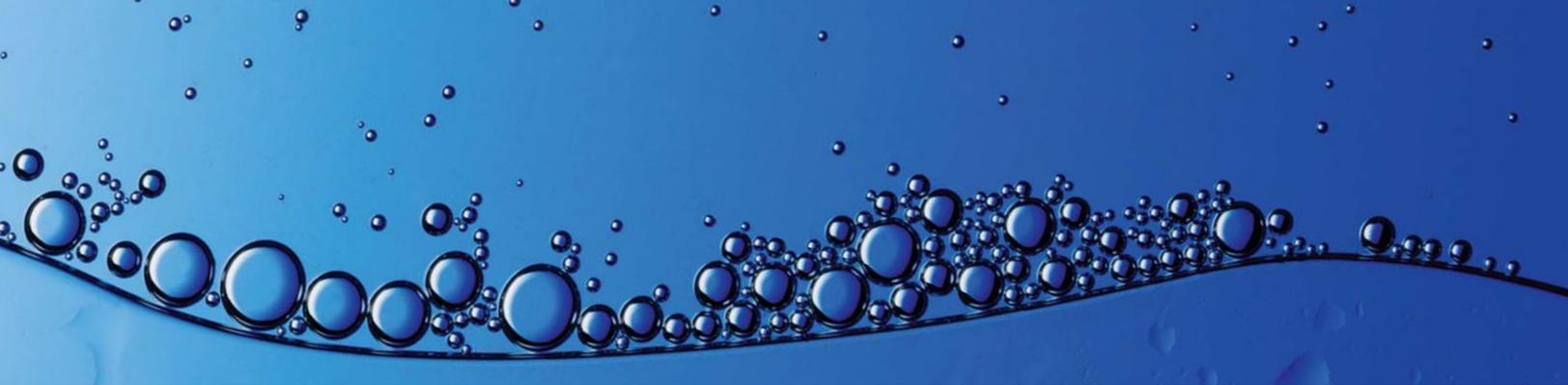
Pressure Gauge

Inlet Shut-Off Valve

SF18-S Scalefeeder Cartridge

Sanitary Quick Change (SQC) Water Filter with Polymer Sump

Designed to operate at a water pressures up to 125 psi.



What is Hard Water?

Hard water is water that contains the minerals calcium, magnesium or a combination of both. Hardness is commonly expressed as grains per gallon.

Is My Water Hard?

According to the U.S. Geological Survey, over 70% of the water supplies would be designated as hard to very hard.

Why is Hard Water a Problem for Boiler Based Foodservice Equipment?

When water is heated, hardness minerals cling to the solid surfaces they contact and form hard scale. This typically occurs on the boiler walls, heating coils, coffee brewer spray heads, water level sensors and most other surfaces that come in contact with the water.

Hard water problems can result in:

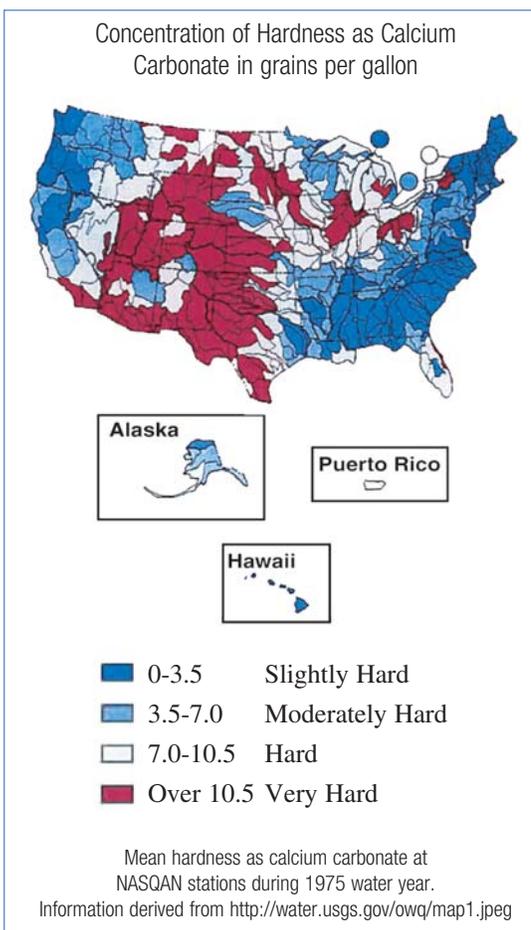
- Increased downtime
- Increased operating costs for de-liming and maintenance
- Inefficient operation due to longer cycle times to heat food and/ or beverages
- Increased energy costs

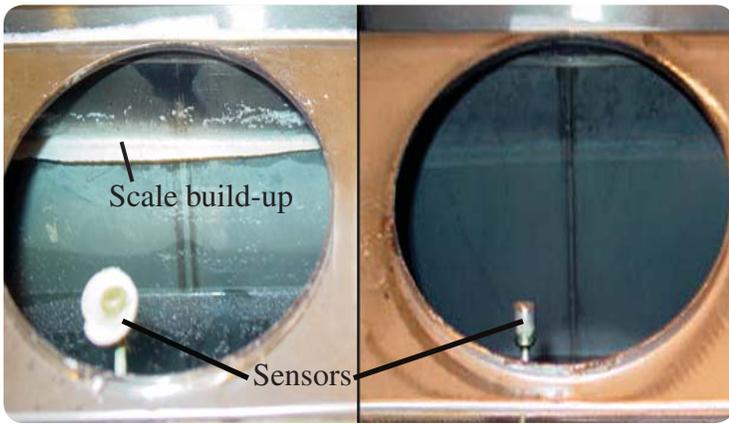
How Can Hard Water Problems be Addressed?

One method of addressing scale problems is with chemically fed scale inhibitors, the most common of which are polyphosphate based. These inhibitors are designed to slow down the rate of hard scale build-up in foodservice equipment by sequestering or binding up hardness minerals so that they can not cling to the equipment's wetted surfaces.

The two most common problems with these scale inhibitors are:

- They typically begin the break down in temperatures above 150°F (66°C), which is well below coffee brewing and boiler temperatures
- Maintaining a consistent dosage of the scale inhibitor





Boiler on left shows scale build-up on the sensor and boiler walls after just **300 gallons (1,140 liters)** of 28 gpg (480 ppm) untreated water.

Boiler on right after **2,000 gallons (7,800 liters)** with the same water, using the SF18-S. (Photos taken at a field test site in Illinois.)

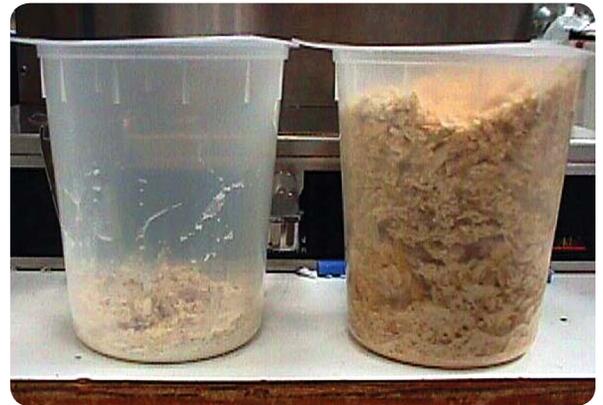
The ScaleGARD™ HT SF165 with the SF18-S — A Better Solution

After years of extensive laboratory and field research, the scientists and engineers at 3M Purification Inc. have developed the ScaleGARD HT SF165 with the SF18-S.

The SF18-S uses scale inhibition media. Unlike most polyphosphate-based scale inhibitors, the media in SF18-S can effectively inhibit scale formation in high temperature applications in excess of 200°F (82°C), without affecting the taste of the beverage.

The secret of the system is its innovative passive-feed orifice. This design allows the system to properly dose the inhibitor at a consistent rate.

The SF18-S exhibits consistent proportional dosing at flow rates between 0.25 gpm (0.95 lpm) and 6.0 gpm (22.7 lpm). The unique design exhibits minimal pressure loss across the system.



The amount of scale scraped from the brewer with no treatment (at right) was far greater than the amount of scale from the treated brewer (at left). This was measured after 5 months using water with 25 gpg (480 ppm).

How Effective is the ScaleGARD HT SF165?

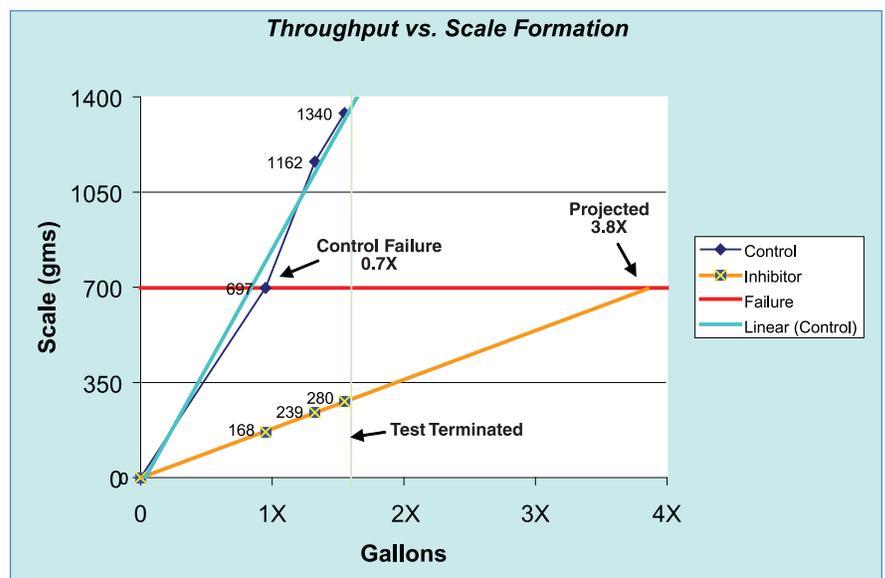
Testing on high-temperature commercial coffee brewers indicates that the ScaleGARD HT SF165 is highly effective at inhibiting scale build-up.

Save on Service Calls

Use of the ScaleGARD HT SF165 may reduce the number of scheduled maintenance calls for de-liming and cleaning.

Assuming the cost of an average call at roughly \$160, this results in an annual savings of approximately \$640.

Actual field-test data from a commercial coffee brewer in 25-grain incoming hard water. The control in this side-by-side test received no treatment. 3M Water Filtration Products scale inhibitor was in the feed water in the treated brewer.





Recipe Quality Water™

Limited Warranty: 3M Purification Inc. warrants this Product will be free from defects in material and manufacture for five (5) from the date of purchase. This warranty does not cover failures resulting from abuse, misuse, alteration or damage not caused by 3M Purification Inc. or failure to follow installation and use instructions. No warranty is given as to the service life of any filter cartridge or membrane as it will vary with local water conditions and water consumption. 3M PURIFICATION INC. MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOMER OR USAGE OF TRADE. If the Product fails to satisfy this Limited Warranty during the warranty period, 3M Purification Inc. will replace the Product or refund your Product purchase price. This warranty does not cover labor. The remedy stated in this paragraph is Customer's sole remedy and 3M Purification Inc.'s exclusive obligation. For additional information, see the entire Limited Warranty located in the product Installation and Operating Instruction Manual.

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