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WATERCARE

DanaHub Module – Fountain Beverage Systems

What We Will Cover in This Module

- Basic Fountain Operation
- How Water Quality Impacts Fountain Drinks
- Selecting the Right Water Filter
- Financial Rewards – Ongoing Cartridge Revenue Stream
- Importance of NSF Certification

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There are Four Types of Fountain Drinks

Non-Carbonated Drinks – contain flavoured syrup concentrate and water, but do not include carbon dioxide (CO2) gas. Fruit punch, lemonade and flavoured Iced Tea are examples of popular non-carbonated drinks.

Carbonated Drinks – contain flavoured syrup, water & CO2 gas. The CO2 is added to the water to enhance the syrup flavour and provide a fizzy taste. Coca-Cola and Pepsi are popular examples.

Frozen Carbonated Beverages – also known as FCB, have the same basic ingredients as carbonated drinks, but the final product is frozen into a slush. The Slurpee and Icee brands are well known examples.

Frozen UnCarbonated Beverages – with the expansion of specialty coffee shops & frozen cocktails, there is a new growth market in frozen 'non' or 'un' carbonated drinks, also referred to as FUB.

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Fountain Systems are Found Everywhere…

- Restaurants, Fast Food, Cafeterias, Taverns, etc.
- Convenience and Grocery stores
- Hospitals, Prisons, Sports Venues, Schools to name a few…

Most fountain dispensers use post mix technology, which means that the water and syrup are mixed in the fountain valve (post) and immediately dispensed into the cup. This finished drink is *manufactured* in the fountain system.

Occasionally, you may find a 'pre-mix' fountain system. The finished drink is manufactured in a local bottling plant and bulk packaged for use in a special fountain dispenser. A pre-mix system might be found at a temporary location for a public event, where an adequate or safe water supply cannot be found.

Example of a typical pre-mix application

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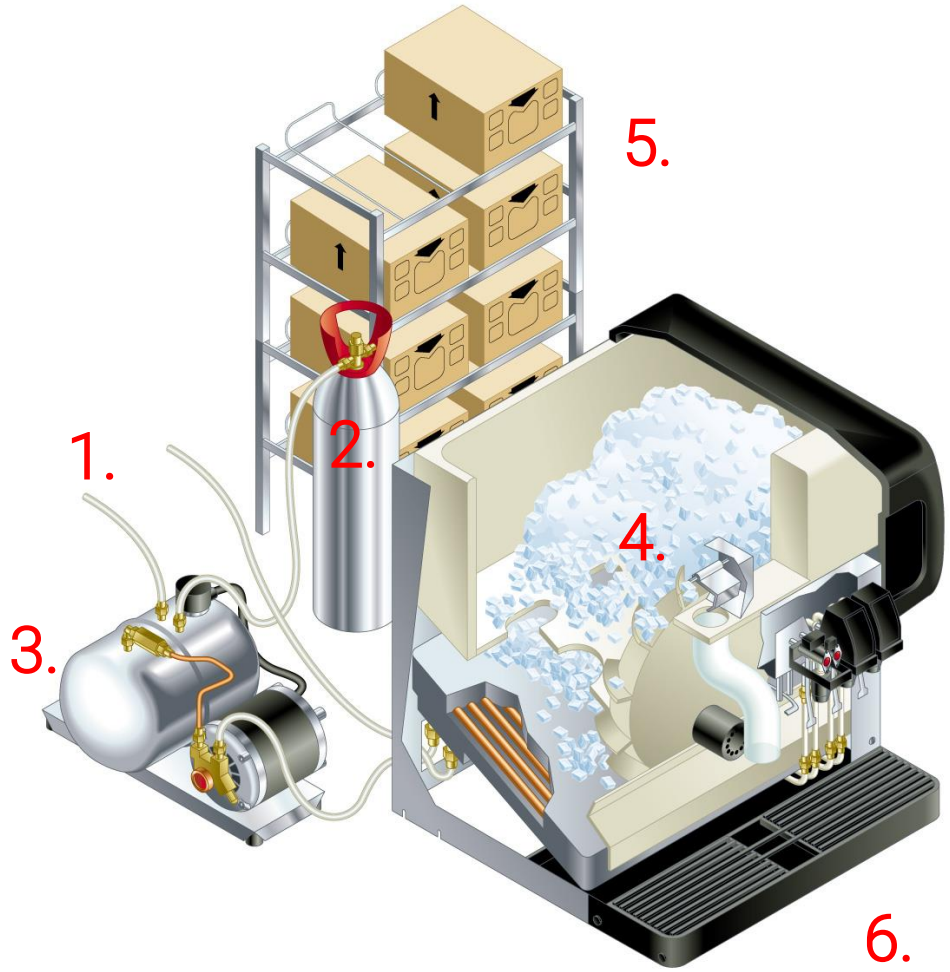
Components of a Fountain System

1) Water Supply
2) Tank of CO_2
3) Carbonator
4) Refrigeration
5) Syrup Supply
6) Dispenser

Carbonated only



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Components of a Fountain System

- The dispenser (cup filler) will be the most visible and may be located on kitchen or service counters, in the drive-thru or in a self-serve area. This component includes the water/syrup mixing valves and some type of mechanical refrigeration or ice bin for chilling the ingredients before blending and dispensing the drink.
- The carbonator is the heart of the beverage system and the entry point for the water supply. It includes a pump, holding tank and pressure switch. The fountain carbonator may be located in a storage room (remote), or under each dispenser (free standing), but a few systems have the carbonator located inside the fountain dispenser. Look for the brass pump to locate the carbonator, and remember that each dispenser will usually have a separate carbonator.

Bag – In – Box (BIB) System

Most fountain syrup is now dispensed from a Bag-In-The-Box (BIB) System.

Each cardboard box contains a 5-gallon plastic bag of syrup with a quick disconnect fitting for easy change out. The boxes of syrup are stacked on a metal rack in a cool, dry storage area away from the kitchen. Clear tubing is plumbed from the bag to a small BIB pump driven with carbon dioxide gas pressure. The BIB pumps push the syrup through bundles of tubing to the fountain dispensers.

For fountain drinks, quality in the cup starts with fresh syrup. Each BIB container includes a clearly marked date code and recommended shelf life for maximum flavor. When reviewing fountain taste complaints, always check for syrup freshness and stock rotation.

Booster Pump & Carbonator Pump

Some restaurants have a water booster pump for non-carbonated beverages. This pump should not be confused with the carbonator pump. The booster pump is used to assure at least 40 pounds of steady pressure at the non-carbonated drink valves on the fountain dispenser. This constant pressure is needed to maintain an exact syrup/water ratio for each drink.

You can identify the booster pump in several ways:

- Usually includes a 100 Gallon Per Hour Procon® Pump (same as carbonator)
- Usually includes a small, gray control box for the Pressure Switch
- Usually includes a visible Pressure Gauge near the control box
- There are no CO2 gas lines into the Pressure Tank

Booster Pump

"Procon®" Pump

Carbonator Pump

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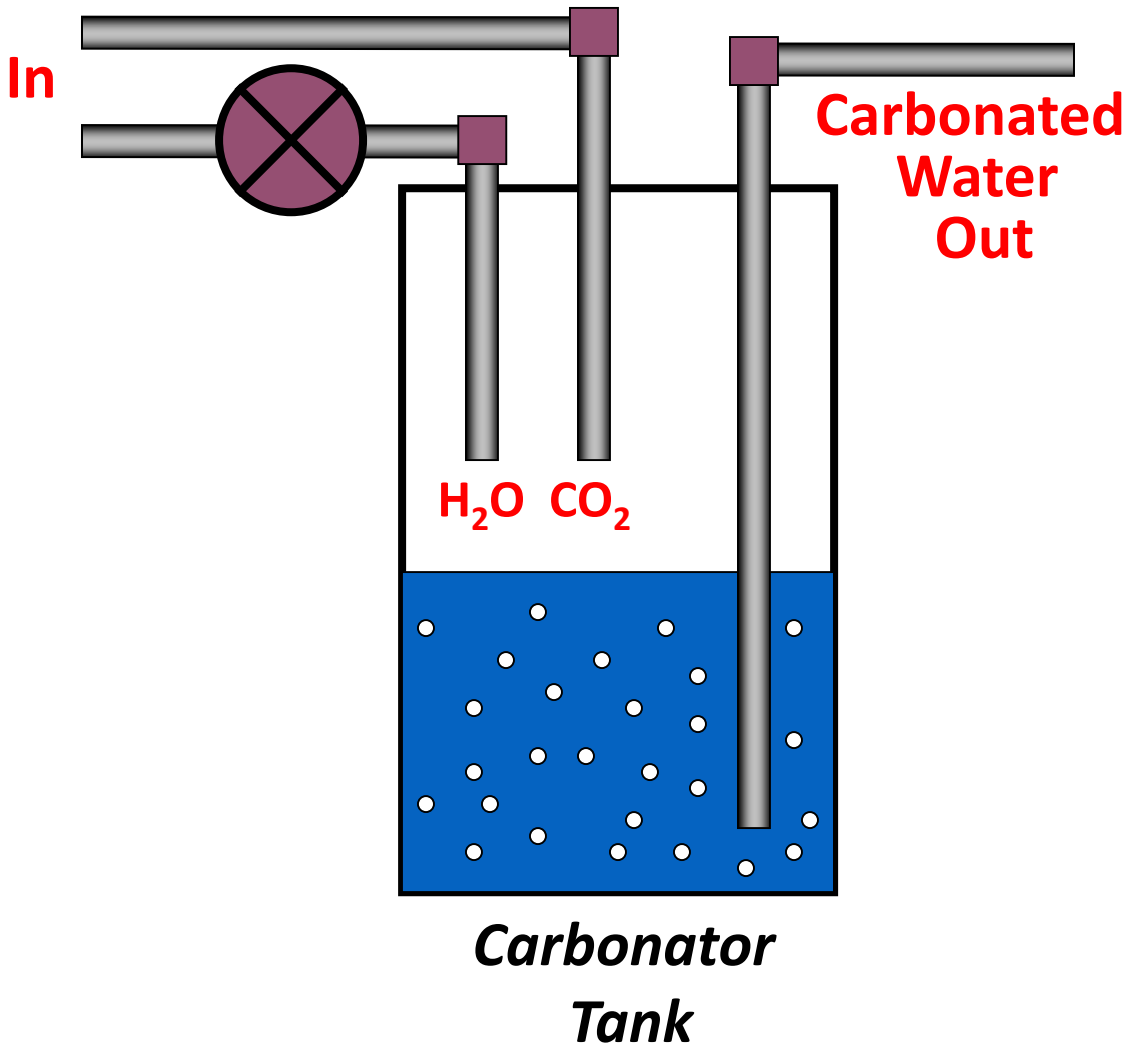
Carbonation Basics

- Pump forces water into the tank
- The water combines with CO_2 gas to form carbonated water
- For fountain drinks, quality in the cup includes proper carbonation. Water must be carbonated and chilled before the syrup flavouring can be added.
- Cold water is connected to the inlet side of the carbonator pump. The electric motor and pump pushes the water into the carbonator tank at 190 – 225 PSI.
- Carbon dioxide (CO2) gas is released from a high-pressure storage cylinder, and regulated to about 105 PSI before it enters the carbonator tank through a second inlet.
- The combined effect of pressure and agitation within the carbonator tank allows the water to absorb a large volume of carbon dioxide gas, and create carbonated water. With proper carbonation, the water holds approximately three times its own volume of compressed gas.



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Dispensing Basics

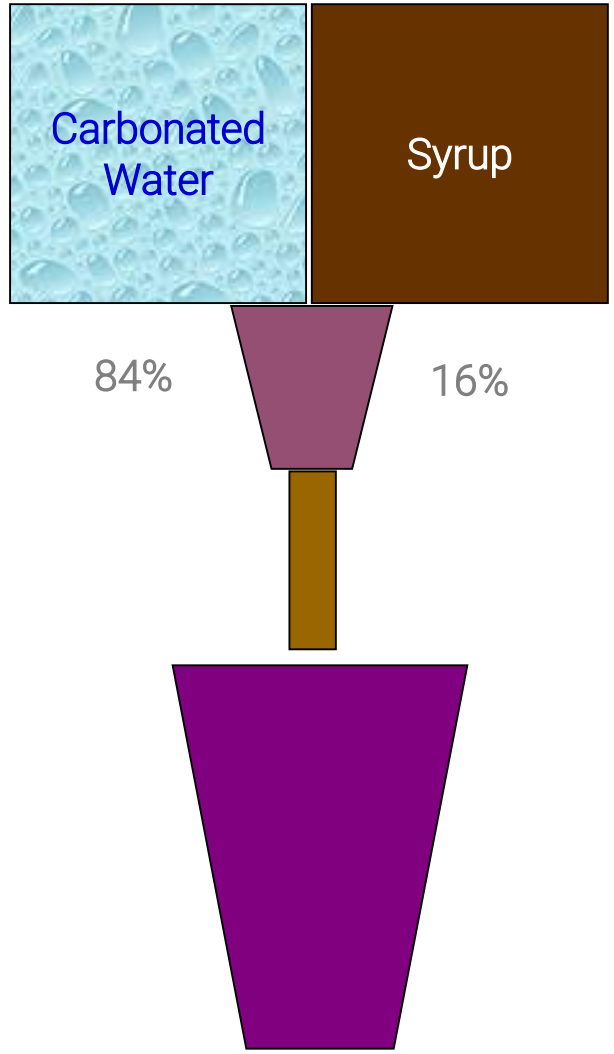
Dispensing System:

- Separate Carbonated Water and Syrup lines
- Liquids Pass Through Refrigeration Unit
- Liquids are Mixed at Dispensing Valves

The fountain dispenser has three basic functions that should contribute to drink quality.

Quality in the cup includes a maximum temperature of 36 degrees F for the finished drink. The fountain dispenser uses mechanical refrigeration or stainless chiller coils around an ice bin to cool the carbonated water and the syrups before mixing at the dispenser valves.

Higher temperatures will release the carbon dioxide gas and create flat drinks. Many fountain dispensers have an overhead icemaker, or ice storage with dispenser, for customer convenience and drink cooling.



Dispensing Basics – cont'd

- Quality in the cup also includes the proper ratio of carbonated water to syrup in each drink. The formula for most fountain drinks includes five parts carbonated water and one part flavored syrup, but diet drinks usually have a higher ration of 4.75 to 1. Each fountain syrup company has also recommended specific adjustments for the type of ice used in the finished drink.
- Note: You may hear the term "brix" in a fountain discussion, and it should not be confused with Ratio.

  Ratio = The prescribed formula of water and syrup volumes in a finished drink.

  Brix = The percentage of sugar in a volume of liquid.
- Quality in the cup must also include proper sanitation at the fountain dispenser valves. Standard valves mix and dispense the finished drink at 3 ounces per second, but some quick serve restaurants have upgraded to the newer fast flow valves at 4.5 ounces per second. In each case, the dispenser valves are mixing highly concentrated sugars (syrup) with carbonated water, and they are exposed to the open atmosphere around the cup. Failure to properly clean and sanitize the valves on a daily basis can result in a large amount of mold growth and some very unhappy customers.

Components of an FCB Machine

<u>A self contained unit with 3 inlet lines:</u>

- Water
- CO_2
- Syrup

Frozen Beverage Systems are self-contained units, with separate inlet connections for water, carbon dioxide (CO2) gas, and flavored syrups.

The carbonated water & syrup are usually mixed at a 4:1 ratio to increase the liquid density, which creates a soft slush in the freezing chamber.

As a rule of thumb, every two flavors require one carbonator pump, and you will find the electrical controls located behind the graphic panels.

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The Target – Drink Quality!

Fountain syrup companies and foodservice operators want their fountain beverage drinks to have the same taste as the can or bottle choice for each brand. Drink quality, brand identity and customer satisfaction drive increased sales volume for everyone involved.

<u>As a quick review, quality in the cup is a function of the following:</u>

- Fresh Syrup – Date Codes and Stock Rotation
- Taste – Water is 87% of the beverage
- Proper Carbonation
- Temperature – Maximum 36 Degrees F
- Proper Syrup Ratio – Brix
- Sanitation – Clean Equipment

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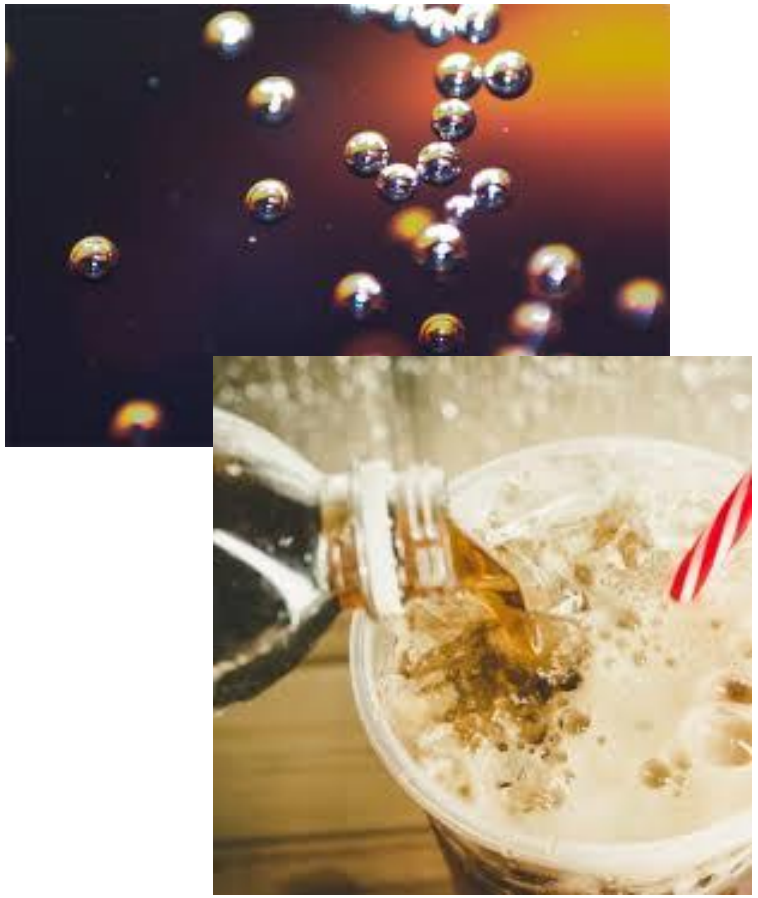
Water Quality & Fountain Beverages

- Suspended solids / turbidity can cause abrasion, clogging and equipment damage
- Small solids can drive carbonation out of the finished drink
- Cysts have potential health effects and are a possible food safety liability
- Natural / organic chemical contaminants can provide unwanted taste, odour and colour
- Chemical disinfectants, such as chlorine and chloramine, can provide unwanted taste in addition to attacking rubber seals & gaskets
- Extreme levels of dissolved solids / minerals can drive carbonation out of the drink
- Some levels of dissolved solids / minerals an create taste issues
- Iron, Manganese and Sulfur can also impact taste issues



How Everpure Water Filters Protect Drink Quality

For pennies a day, water filters provide:

- Taste – beverages taste exactly like the brand (Pepsi, Coke, etc.)
- Consistency – they taste the same day in and day out, location to location, coast to coast
- Carbonation – by removing unwanted particle, drinks hold their carbonation longer ensuring customer satisfaction!
- Peace of Mind – NSF certification ensures that you have that added level protection against parasitic cysts & boil water advisories

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Selecting the Right Water Filter…

Examples of questions to be answered:

- How Many Carbonator Pumps does the customer have?
- Is there a Water Booster?
- How many Non-Carbonator Pumps does the customer have?
- How Many Bag in Box per month does the customer go through?
- What is the existing water line size?
- How much room is there to install filtration?
- Is there a drain close by?
- What is the inlet water pressure to the facility?

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Estimating Peak Flow Rates & Volumes

The two most important things you need to know to size properly: what is the required flow rates of the equipment the client has and what volume of water are they going through based on their syrup consumption?

The basic rules of estimating are as follows:

- Each carbonator / non-carb booster pump has a peak flow rate demand of 1.67 gpm (gallons per minute)
- Each carbonator / non-carb booster pump cycles for 20 to 30 seconds
- Each carbonator pump requires a minimum of 3/8” water line
- Multiple pumps require a minimum of ½” water line

The basic rules for estimating volume (based on two filter changes per year):

- Each 5-gallon box of syrup needs approx. 25 gallons of water x 26 weeks (x number of syrup per week x 25 x 26 equals the number of gallons of filtered water in 6 months
- We then compare and consider what the required flow rate is and the required volume of water.
- Always size cautiously; you are better to go up to the next larger system than cut it close and the exponential increase in flow rate and capacity of a larger filter system more than pays for itself in longer filter life.

Filter Sizing Chart – Bag- in-Box Monthly Usage in Red

	Single	Twin	Triple	Quad
Carbonators: 1	25	110	N/A	N/A
2	N/A	50	120	N/A
3	N/A	N/A	100	180
4	N/A	N/A	N/A	140
5	N/A	N/A	N/A	120

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Profit Opportunity

WaterCare Solutions Pay for Themselves:

- Taste – fountain drinks taste like they should
- Consistency – they taste the same day in and day out, location to location, coast to coast
- Carbonation – clean crisp water means carbonation holds – no flat drinks – Customer Satisfaction!

Selling WaterCare Solutions is GOOD BUSINESS:

- Ongoing cartridge revenue stream for the systems you sell year after year
- Wide range of upgrade cartridge options to upsell to your clients
- Add filtration to other areas of the clients business (coffee, espresso, ice, steam, etc…)
- Best warranty in the business!

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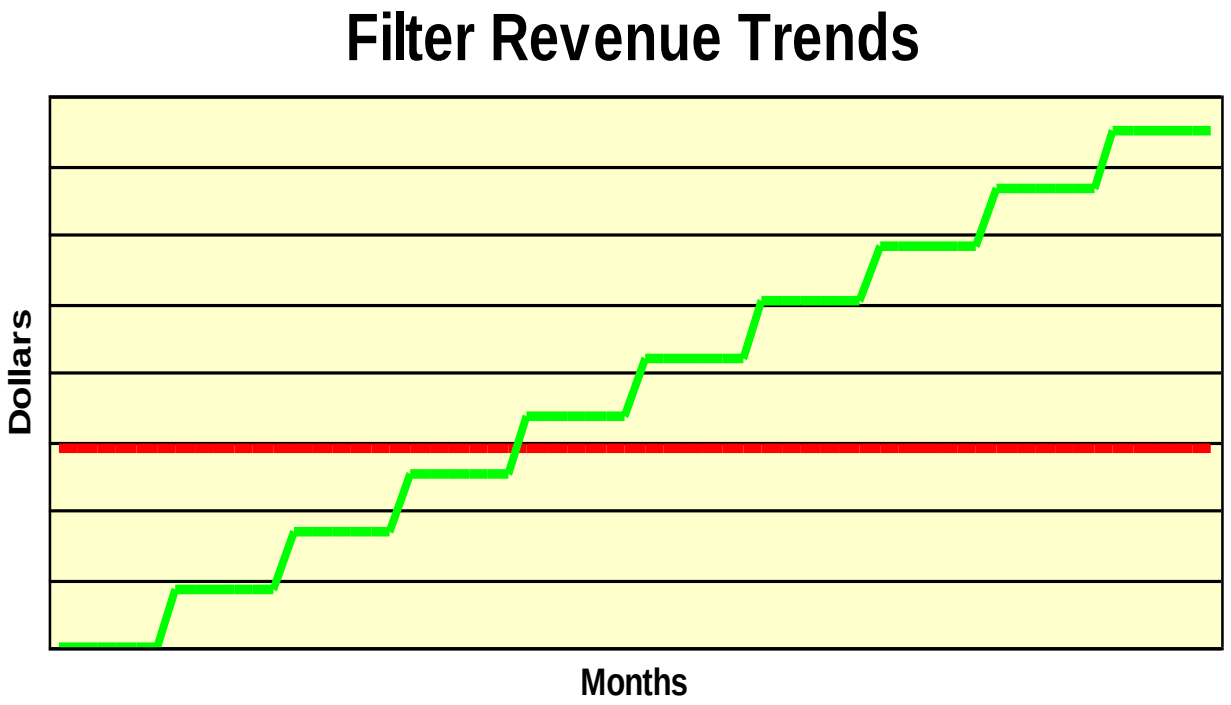
Profit Opportunity



One new filter per month yields increasing cartridge changes over the years, ensuring a steadily growing revenue stream

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Importance of NSF Certifications & Food Safety

The National Sanitation Foundation (NSF) is an independent third party certification organization. Drinking Water Treatment units are voluntarily submitted for certification. Everpure has the most certified products on the market today.

NSF/ANSI Certified Drinking Water Treatment units undergo the following testing:

- Extraction testing to ensure that wetted parts do not leach contaminants
- Structural Integrity testing
- Literature review to ensure honest and accurate product performance claims
- Performance testing against specific contaminants, per the NSF/ANSI Standard.

Look for the NSF Mark:

- NSF/ANSI Standard 42 certifies aesthetic claims, which include mechanical reduction of solids and reduction of chlorine.

- NSF/ANSI Standard 53 certifies health claims. NSF/ANSI Standard cyst reduction certification requires 99.95% or greater of cysts removed.

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Protecting Drink Quality is as easy as 1 – 2 - 3

1) Install the proper Watercare Equipment

2) Assure results with the proper installation

3) Establish a Preventive Maintenance Schedule & Stay on Schedule!

Establishing Regular Preventative Maintenance (PM) with the customer and replacing filter cartridges when needed, is of paramount importance.

Preventative maintenance can be assured by scheduled automatic service calls, auto ship programs or by sending automatic reminders to the customers.

Remember: S I R – Select – Install - Replace

Is the key to providing quality, protecting equipment and selling filters.

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Recap

WaterCare is a great business to be a part of…it benefits your customers and their operations and it provides you with a new revenue stream.

Water filters pay for themselves through:

- Customer satisfaction by serving consistently high quality beverages, day in and day out
- Reduced emergency maintenance
- Extended equipment life
- Peace of mind –water is food and food safety is everything (NSF Certification)

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Thank you for your time.

This concludes our DanaHub Module on Fountain Beverage Systems

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