

FLOMATIC[®]



Flomatic Beverage Valves

Technician's Handbook

This manual is updated as new information and models are released. Visit our website for the latest manual.
www.manitowocfsg.com

America's Quality Choice in Refrigeration
Part Number STH15 9/10

Safety Notices

As you work on Manitowoc equipment, be sure to pay close attention to the safety notices in this handbook. Disregarding the notices may lead to serious injury and/or damage to the equipment.

Throughout this handbook, you will see the following types of safety notices:



Warning

Text in a Warning box alerts you to a potential personal injury situation. Be sure to read the Warning statement before proceeding, and work carefully.



Caution

Text in a Caution box alerts you to a situation in which you could damage the equipment. Be sure to read the Caution statement before proceeding, and work carefully.

Procedural Notices

As you work on Manitowoc equipment, be sure to read the procedural notices in this handbook. These notices supply helpful information which may assist you as you work.

Throughout this handbook, you will see the following types of procedural notices:

Important

Text in an Important box provides you with information that may help you perform a procedure more efficiently. Disregarding this information will not cause damage or injury, but it may slow you down as you work.

NOTE: Text set off as a Note provides you with simple, but useful, extra information about the procedure you are performing.

Read These Before Proceeding:

Caution

Proper installation, care and maintenance are essential for maximum performance and trouble-free operation of your Manitowoc equipment. If you encounter problems not covered by this handbook, do not proceed, contact Manitowoc Foodservice Group. We will be happy to provide assistance.

Important

Routine adjustments and maintenance procedures outlined in this handbook are not covered by the warranty.

Warning

PERSONAL INJURY POTENTIAL

Do not operate equipment that has been misused, abused, neglected, damaged, or altered/modified from that of original manufactured specifications.

We reserve the right to make product improvements at any time. Specifications and design are subject to change without notice.

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General Information

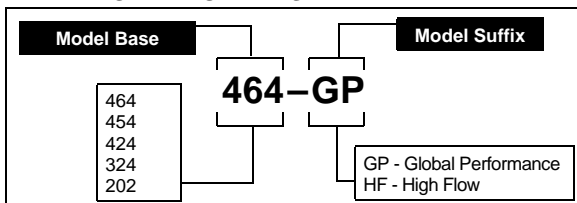
Model Numbers

This manual covers the following models:

424	464-GP
372-Q (Back Block)	380-Q (Back Block)
Tower	

How to Read a Model Number

VALVE MODEL NUMBERS



With all models, mounting and ratio control are the same. All Flomatic valves are identified by a Model Number, Serial Number, a manufacture month and year on the underside of the flow control base. These numbers are a helpful reference before beginning any valve service.

Model/Serial Number Location

This number is required when requesting information from your local distributor. All Flomatic valves are identified by a Model Number, Serial Number, a manufacture month and year on the underside of the flow control base. These numbers are a helpful reference before beginning any valve service

Accessories

Manitowoc Foodservice developed this manual as a reference guide for the service agent and installer of fountain equipment.

Fountain dispensing is the serving of a beverage (soft drink, tea, or juice, etc.) from a dispenser that will chill the product to an acceptable serving temperature for the consumer.

The beverage, delivery system and dispenser can be postmix or premix. The system may be an elaborate system with most of the components in the back of the store and the dispenser in the front. Fountain systems could be a simple system with the complete system under the counter where the dispenser is located.

Our goal is that this manual will remove some of the confusion, and mystery of beverage dispensing equipment while providing a general overview of service to the equipment.

VALVES

Most Flomatic valves are available in sanitary push lever, push button, automatic fill lever, and portion control models.

Replacement

Flomatic created a kit (5007842) to replace both the 372-Q or 380-Q Flomatic mounting blocks. All Flomatic mounting blocks are identical in appearance, except for the part numbers shown on the front recess of the block. The 380-Q has inlet ports sized at 0.380 in. The 372-Q inlet ports are sized at 0.372 in.

WHAT IS CARBONATION

Carbonation is the process of mixing carbon dioxide gas into a liquid (water). The resulting liquid is called soda water or carbonated water. The carbon dioxide gas is the bubbles you see when a carbonated beverage (like soda) is dispensed.

Most cola, lemon-lime products, etc. are carbonated. Normally teas, juices, etc. are noncarbonated.

Some beverage technicians refer to noncarbonated water as sweet water.

WATER CHARACTERISTICS

Water makes up over 80% of the typical finished beverage. The quality of this primary ingredient is of utmost importance. You should use regular cold tap water, not water that has been through a water softener, conditioner, etc. Any off taste or color should be treated by proper water filtration.

WATER FILTERS

It is recommended that proper water filters treat the water supply for the beverages. There are two basic filters commonly in use.

1. Pre-filter, or sand filter. This filter removes any foreign matter from the water down to 25 microns in size.
2. Carbon or activated charcoal filter is also used. This filter will reduce chlorine and other chemicals, off-taste and odor. Some of the higher quality filters may reduce organic compounds (bacteria) in the water.

Do not use a filter containing any type of phosphate on the beverage system. Phosphate as used for scale reduction will cause the beverage to lose its carbonation and become "flat" quickly.

WATER PRESSURES

Dynamic (flowing) water pressures to most carbonators should be a minimum of 40 PSI. Water pressure to dispensers for noncarbonated beverages should be a minimum of 60 pounds. These pressures are minimum operating pressures, not static pressure.

SYRUP BASICS

Your concentrated syrup containers should be stored in a cool dry location that is easily accessible. Any extremes in temperature can wreak havoc with the quality of the product. For best results, the syrup should be maintained in an environment between 40 and 90 degrees.

PREMIX

Premix fountain dispensing consists of a container (figal) of beverage ready for dispensing, beverage delivery system, carbon dioxide (CO₂) propellant, beverage cooling system, and dispenser. We shall discuss each component of this type of system within the context of this manual.

The major advantage of a premix system over most other types is its flexibility. This flexibility is the ability to go anywhere. Many premix systems will operate without electric power or separate water supply.

POSTMIX

Postmix fountain dispensing consists of either a tank (called a Figal) or a box (called a Bag-in-Box) of beverage syrup. The postmix system will also include the carbonator, fresh water supply, carbon dioxide (CO₂) supply, syrup delivery system, beverage cooling system, and dispenser. We shall discuss each component of this type of system within the context of this manual.

The major advantage of the postmix system over most other systems is the very low cost of delivering a high quality, fresh beverage to the consumer utilizing less floor and storage space for the quantity of beverages served.

PIPING

The fountain system is connected together by a series of tubing or hoses. This tubing is called beverage tube or hose and is commonly available in 1/4", 3/8", and 1/2" inside diameters. Beverage hose is a flexible, high-pressure hose. This hose is capable of withstanding system pressures in excess of 100 PSI. The beverage hose may be an individual line or assembled with many lines of hose bundled together.

The beverage tubing or hose is attached to the various components of the system with barbed stems, nuts, tees, etc. The tubing is held onto the fittings with small tube clamps called stepless (Oetiker®) clamps. When attaching the tubing and fitting to a "flared" fitting, the use of a flare washer is required.

Several different type of tubing are available for the beverage industry. If there is any possibility of the tubing laying in a damp environment, the use of non-permeable tubing should be used. Tubing is also available as a single tube or bundled together. Single tube is available as non-permeable plastic or stainless steel. Bundled tube is available as plastic only.

Special Applications

OUTDOOR APPLICATIONS

Flomatic Valves are approved and listed by Underwriters Laboratories (UL). However they are not UL approved for weather exposure applications. These units must be installed in areas where adequate protection from the elements is provided, all other models are ETL listed.



Warning

Personal Injury Potential

Do not operate equipment that has been misused, abused, neglected, damaged, or altered/modified from that of original manufactured specifications.

Warranty Information

Consult your local distributor for terms and conditions of your warranty. Your warranty specifically excludes all beverage valve brixing, general adjustments, cleaning, accessories and related servicing.

No equipment may be returned without a written Return Materials Authorization (RMA). Equipment returned without an RMA will be refused at the dock and returned to the sender at the sender's expense.

Please contact your local distributor for return procedures.

Installation

Pre-installation Checklist

When installing any system, first make sure the following has been done:

Relieve the system pressure before removing or repairing the mounting block.

Determine which mounting block you need.

324, 424 & 464 Valves

These valves are available in manual, electric, portion control and automatic fill models. All of these Flomatic valves share the same mounting and flow control characteristics. The 324 valves are also compatible with the 300-Q mounting block.

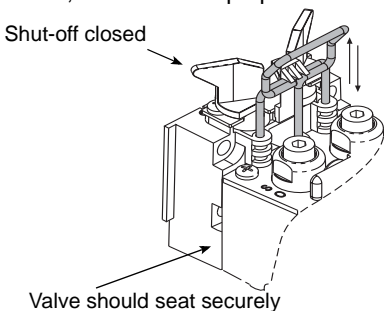
Flomatic created a kit (5007842) to replace both the 372-Q or 380-Q Flomatic mounting blocks. All Flomatic mounting blocks are identical in appearance, except for the part numbers shown on the front recess of the block. The 380-Q has inlet ports sized at 0.380 in. The 372-Q inlet ports are sized at 0.372 in. Select the appropriate mounting option and install the mounting block. Wet the inlet O-rings with water to ease installation; do not use Vaseline®. Align the four bolt holes and mount.

Important

Be sure to relieve the system pressure before removing or repairing the mounting block.

Remove the valve cover and align the valve stems with the mounting block. Independent positive shut-offs and the locking system prevent removal while the system is pressurized. The valve cannot be removed unless the shut-off valves are closed (arrows pointed across service line).

The mounting hole pattern typically has key slots to secure the product supply lines. If no key slots are present, use the “S” clip option.



Engage the valve and depress the latch pin. Do not force or you could bend the pin. If you have difficulty, remount the valve and try again. Be sure the valve base is completely seated against the block. Open the shut-off valves by turning 1/4 turn (arrows pointed toward service line) to engage system pressure.

INSTALL ADD-A-LEVER FOR “SODA ONLY”

The Flomatic Add-a-Lever is a two-piece assembly which mounts on the pivot pin. Remove the cover, partially withdraw the pivot pin to allow mounting, reinsert the pin then replace the cover.

CONVERT TO PORTION CONTROL

Flomatic portion control electronics are contained in the cover and can be factory or field installed. When installing in the field, the 5031015 Conversion Kit for the 464-GP makes it easy to add portion control.

The portion control module is designed to simplify installation. The board can be programmed with the first pour.

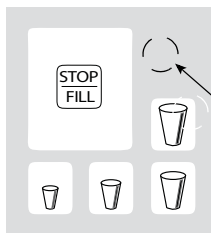
The “Stop/Fill” button serves as a top-off button and cancels any of the timed portions if you need to abort the pour.

464 Portion Controls



Hidden Program Switch

424 Portion Controls



Hidden Program Switch

Each cup size must be programmed separately. Cup sizes are preprogrammed at the factory:

- 1 second = small
- 2 second = medium
- 3 second = large
- 4 second = x-large.

Set the flow rate first, brix the valve, and then set the cup sizes to match your desired flow rate. Once the valve is brixed, replace the valve cover and set the times (cup sizes) from the front switch pad.

The switch pad has a hidden “program” switch that must be held down to keep the module in program mode. Setting the times or programming is a two-handed operation; push and hold the program switch with one finger while dispensing the cup size you wish to program with another. Once the drink is full, simply release the cup size button to end the pour cycle and then let go of the program switch. Repeat the process for each cup size.

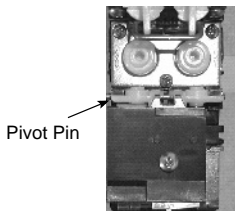
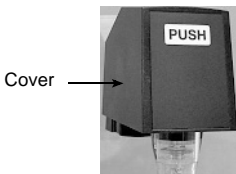
The module will remember one top-off cycle automatically if the foam height requires it to complete the pour. To program a top-off cycle, begin programming as described above. Once the foam crests the top of the cup, PAUSE by removing your finger from the cup size button. Do not release the program button. Pause long enough for the foam to settle, and then continue the pour with your finger on the same cup size button until the cup is full. The module will remember the sequence “pour - pause - pour” as it was executed.

If you program the top-off feature, be sure to train the operators so they do not pull a drink before the cycle is complete. The portion control module will finish the pour whether a cup is there or not.

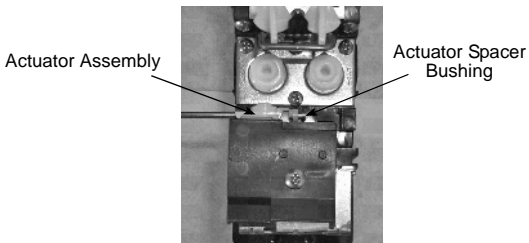
TO CONVERT PUSH BUTTON TO SANITARY LEVER OPERATION

Flomatic Valve With Pallet Actuators

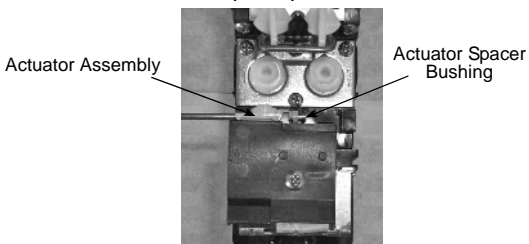
1. Remove the valve cover from the valve.
2. Slide pivot pin far enough to one side to remove the actuator spacer bushing from between the two actuator assemblies.



- Slide the pivot pin back into place. Make sure both actuator assemblies are mounted correctly on the pivot pin. The “fingers” of the solenoid armature must be located on the back side of the actuators. When the armature pulls into the solenoid, these “fingers” will pull the actuators and open the pallets.



- Slide sanitary lever from the bottom up into the flow control base. The notch on the sanitary lever will be on the top of the lever facing toward the back of the valve. Hook the notch near the top of the lever over the pivot pin.

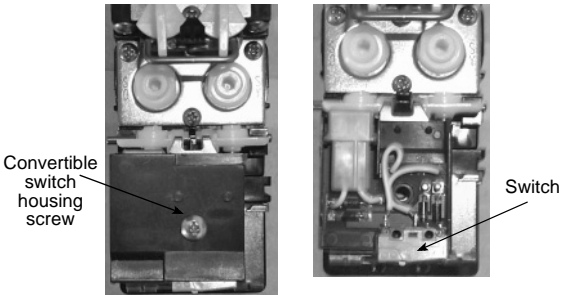


- Snap the electric retainer cap onto the sanitary lever. Make sure it is tight. The retainer cap has a top “arm” extension that is the back portion of the retainer.

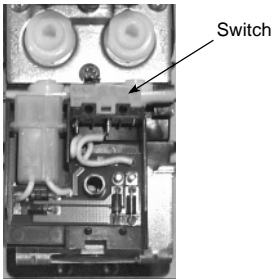


- Remove the screw from the convertible switch housing cover.

7. The switch cover snaps together with a top and bottom half. Unsnap the top cover. Downward pressure on the bottom half of the assembly while unsnapping the sides of the switch assembly makes the job easier. If you accidentally pull the entire switch assembly off the solenoid, you must put it back one piece at a time. Gently lift the micro switch from the two pins in the front of the convertible switch housing base.



8. Being careful not to break any wires, flip the micro switch on its back. Install the switch on the two pins at the rear of the lower switch base. Make sure the button on the switch lines up with the retainer cap arm.

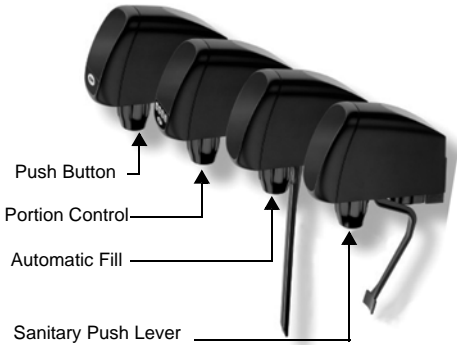


9. Snap the switch housing cover onto the base and re-install the screw. Tighten the screw snug.
10. Install a push lever cover or place a flavor label over the entire front of the valve cover.

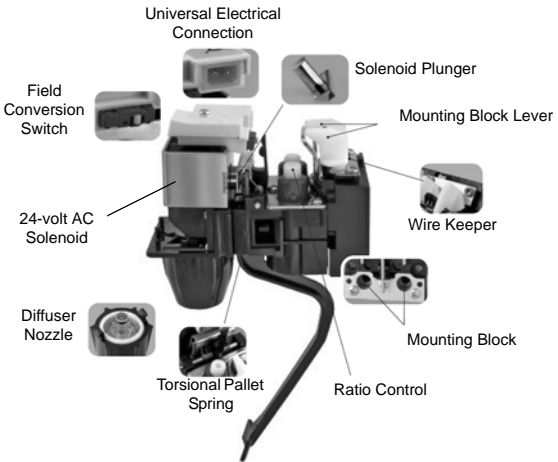
Component Identification

Valve Types

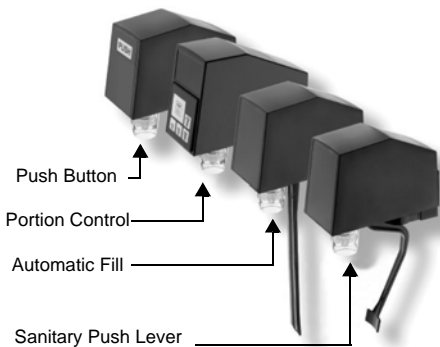
464-GP POST-MIX



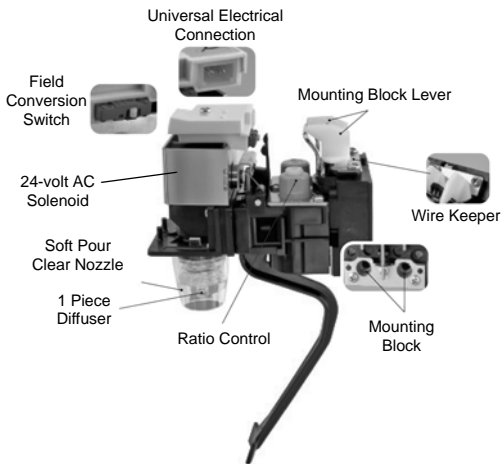
Parts



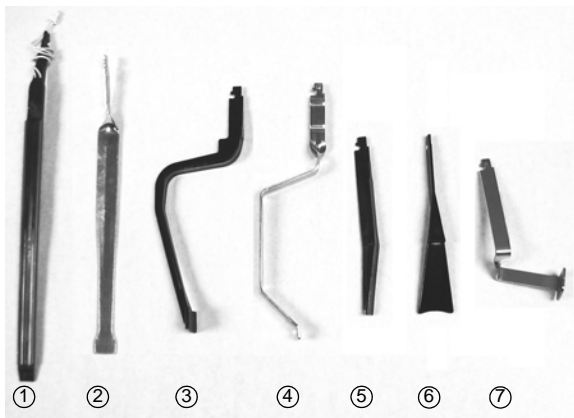
424 POST-MIX



Parts



Levers



1. Automatic Fill Lever (Walrus) Part # 516-10. This lever is used on current production Automatic Fill valves.
2. Automatic Fill Lever Part # 516-08. This Stainless Steel auto fill lever was used on the 424-A30, 454-A30, and 464-A30 valves.
3. Lever Molded Sanitary Part # 516-09. This Lever is currently used on 424 sanitary lever valves and on 464-GP sanitary lever valves. This lever was also used on 454 and 464 valves.
4. Lever Stainless Steel Sanitary Part # 516-06. This lever was used on early production 424 and 454 sanitary lever valves, and can also be used on current production sanitary lever valves when the application requires a stainless steel lever.
5. Euro Lever Part # 516-07. This lever is used in the European market for Flomatic valves and on Flomatic 202 water valves.
6. Lever Black (Dove Tail) Part # 516-01. This was the standard lever used on 424, and 454 valves prior to the sanitary lever. Until August 15, 2001 this lever was produced for 202 water valves. This lever has been replaced by Part# 516-07.
NOTE: See technical bulletin TB-FL03-01.
7. M4 Lever Sanitary Part # 516-04. This valve is used on the 424-612-M4-1521 Juice Valve.
8. Not Shown Powder coated Stainless Steel Sanitary Lever Part # 516-06-B. Used on 202-FN-SLB-B valves. This lever is the same as # 4 (516-06) but it has a black powder coat finish.

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Maintenance

Maintenance Schedule

This section provides a list of periodic maintenance tasks and the scheduled frequency required to ensure the proper operation of your dispensing equipment. To ensure quality beverages, prevent downtime, and reduce costs, these tasks must be performed as indicated.

All cleaning must meet your local health department regulations. The following cleaning instructions are provided as a guide.

Caution

Use only warm soapy water to clean the exterior of the valve. Do not use solvents or other cleaning agents.

Warning

Electric Shock Hazard

Unplug unit before servicing or cleaning.

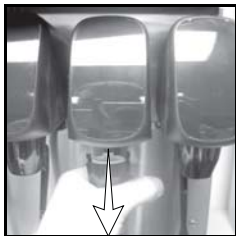
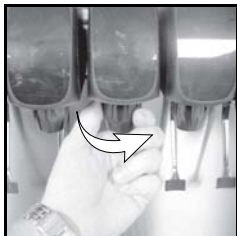
Warning

Rubber gloves and eye protection should be worn.

PERIODIC MAINTENANCE

Dispensing Stations

- Take temperature of finished drinks. Pour off the first and take the temperature of the second drink. The proper temperature of drinks must be 40°F (4°C) or less.
- Remove nozzles and diffusers from each dispensing valve.



- Clean with soap and warm water (not hot). Rinse with carbonated water and reinstall.

Important

If you wish to soak the nozzle and diffusers, soak them **ONLY** in soda water, **NEVER** use bleach.

- Brush lever slot with warm water to prevent syrup build-up and sticking. Wipe cover and panel with a clean cloth and you are finished. Nothing more needs to be done unless you experience a problem.
- If refurbishing a piece of equipment, remove the solenoid from the valve. Once removed, the entire valve can be submerged in warm water for cleaning.
- Flush all dispenser drains. Pour warm water down drains at closing.

Daily

- Take temperature of finished drinks. Pour off the first and take the temperature of the second drink. The proper temperature of drinks must be 40°F (4°C) or less.
- Remove nozzles and diffusers from each dispensing valve. Clean with soap and warm water (not hot). Rinse with carbonated water and reinstall.
- Clean general area of syrup hookup with soap and warm water. Rinse off all soap.

Cleaning and Sanitizing the Dispensing Valves and Product Lines

MAINTENANCE SCHEDULE

Every day
Dispensing valves
Drip pan and drain hose
Quick disconnects
Weekly
Outside, dispenser cabinet
Every 3 months
Syrup circuits

CLEANING EQUIPMENT AND SUPPLIES

- **Recommended cleaner:** Any caustic-base (low sudsing, non-perfumed, easily rinsed) detergent solution which provides a minimum 2% sodium hydroxide. The solution must be prepared in accordance with the manufacturer's instructions. Solution temperature must be between 90°F (32°C) and 110°F (43°C). Temperatures in excess of this can cause internal damage to the dispensing valve components.
- **Recommended sanitizer:** Any sanitizer which provides a minimum of 120 parts per million (120 milligrams per liter) of available chlorine. Solution temperature must be between 90°F (32°C) and 110°F (43°C). Temperatures in excess of this can cause internal damage to the dispensing valve components.
- **Two five gallon (figals) syrup tanks** and fittings, cleaned and sanitized (one for cleaner; one for sanitizer)
- **Containers** for cleaner and sanitizer solutions
- **Clean, non-abrasive cloths**
- **Buckets**
- **Small Brush**
- **Extra Nozzles**

CLEANING AND SANITIZING PROCEDURE

NOTE: Cleaning and sanitizing is not required for potable water circuits. Potable water lines must remain connected and operational during the cleaning and sanitizing procedures for syrup circuits.

Caution

It is **required** that the Carbonated Water Lines remain connected and operational during cleaning and sanitizing of the syrup circuits. Sanitizing of the valve without the Carbonated Water side operation may leave bacteria in the nozzle, diffuser, and syrup tube.

Cleaning and dispensing valves

1. Disconnect each syrup container from its product line. Remove product from the lines by purging with clean warm tap water until syrup has been fully purged from the product lines and valves.
2. Clean all lines and fittings with cleaning solution and rinse with clean, room temperature water to remove all traces of residual product.

Cleaning the product lines

1. To clean each valve product line, attach the valve product lines to the pressure tank containing the cleaning solution. Make sure each line is completely filled. Pressurize the lines by pulsing the valves.

Pressurizing the product lines

- A. For 15 seconds turn dispensing valve ON, OFF, and then immediately ON again for 15 cycles.
- B. Allow the valve to remain flowing for 3 minutes.
- C. Repeat pulsing and flowing the valves again until all cleaning solution has been used.

 **Caution**

Do not allow cleaning and sanitizing solutions to remain in syrup systems longer than recommended contact time. Exceeding contact time will result in damage to valve components.

2. Remove the nozzles and the diffuser assemblies from the valves. Clean with cleaning solution. Agitate the assemblies to ensure assemblies are clean. Place them in a container of sanitizing solution for 15 minutes. Wearing sanitary gloves, remove the nozzles and diffuser assemblies from the sanitizing solution. Drain each until dry and reassemble to the valves.
3. Flush the cleaning solution from the lines with sanitizer after a minimum of 3 minutes, by pulsing the valves as described above.
4. Attach each valve product line to the pressure tank containing the sanitizing solution. Be sure all connections are cleaned and sanitized before connecting to each product line.
5. Pressurize and fill the lines with sanitizing solution. Make sure lines are completely filled, Allow the sanitizing solution to flow through each valve while activating the valves for 15 cycles.
 - A. Leave valves OFF and allow to stand pressurized for 30 minutes.
 - B. Activate the valves for two (2) cycles. Flush remaining sanitizer continuously through the valves.
6. Reconnect the syrup containers to their respective circuits. Prepare the unit for operation.
7. Draw drinks to refill lines and flush the sanitizing solution from the dispenser. Taste the beverage to verify that there is no off-taste (chlorine).

Sanitizing

BEVERAGE SYSTEM CLEANING

Warning

Flush sanitizing solution from syrup system.
Residual sanitizing solution left in system could create a health hazard.

Warning

When using cleaning fluids or chemicals, rubber gloves and eye protection must be worn.

Sanitize the beverage system at initial start-up as well as regularly scheduled cleaning. The drain pan must be in place under soda valves, to carry away detergent and sanitizing agents that will be flushed through valves.

BAG-IN-BOX SYSTEM SANITATION

The procedure below is for the sanitation of one syrup circuit at a time. Repeat to sanitize additional circuits.

You will need the following items to clean and sanitize the Bag-in-Box (BIB) beverage system:

- Three (3) clean buckets
- Plastic brush or soft cloth
- Mild detergent
- Unscented bleach (5% Na CL O) or Commercial sanitizer
- Bag-In-Box bag connector

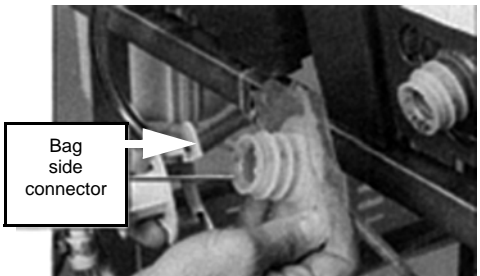
1. Prepare the following in the buckets:

- Bucket 1 — warm to hot tap water for rinsing.
- Bucket 2 — mild detergent and warm to hot water.

- Bucket 3 — mix a solution of unscented bleach (5% Na CL O) or commercial sanitizer and warm to hot water. Mixture should supply 100 PPM available chlorine (1/4 oz. bleach to 1 gallon water).



2. Disconnect the “syrup-line side” of the BIB connector.



3. Rinse connector with warm tap water.



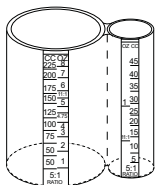
4. Connect syrup connector to BIB connector and immerse both into Bucket 1. A “bag-side” connector can be created by cutting the connector from an empty disposable syrup bag.
5. Draw rinse water through system until clean water is dispensed. Most beverage valves allow the syrup side to be manually activated by depressing the syrup pallet.
6. Connect Bucket 2 to system.
7. Draw detergent solution through system until solution is dispensed.
8. Repeat steps 2-7 until all syrup circuits contain detergent solution.
9. Allow detergent solution to remain in the system for 5 minutes.
10. Connect Bucket 3 to system.
11. Draw sanitizing solution through system until solution is dispensed.
12. Repeat step 11 until all syrup circuits contain sanitizer solution.
13. Allow sanitizer solution to remain in system for 15 minutes.
14. Remove nozzles and diffusers from beverage valves.
15. Scrub nozzles, diffusers and all removable valve parts (except electrical parts) with a plastic brush or a soft cloth and the detergent solution.
16. Soak nozzles, diffusers and removable valve parts (except electrical parts) in sanitizer for 15 minutes.
17. Replace nozzles, diffusers and valve parts.
18. Connect Bucket 1 to system.
19. Draw rinse water through system until no presence of sanitizer is detected.
20. Attach syrup connectors to BIBs.
21. Draw syrup through system until only syrup is dispensed.
22. Discard first 2 drinks.

FIGAL BEVERAGE SYSTEM

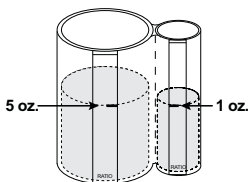
1. Prepare the following in three clean Figal tanks:
 - **Rinse tank** - fill with room temperature tap water.
 - **Detergent tank** - mix approved beverage system cleaner with warm water as directed.
 - **Sanitizing tank** - mix a solution of unscented bleach (5% Na CL O) or commercial sanitizer and warm to hot water. Mixture should supply 100 PPM available chlorine (1/4 oz. bleach to 1 gallon water).
2. Disconnect all product and water lines from product tanks and remove carbonator.
3. Locate the Figal syrup tank for the circuit to be sanitized. Remove both quick disconnects from the Figal syrup tank. Rinse quick disconnects in tap water.
4. Connect rinse tank to the syrup line. Draw clean rinse water through the valve until syrup is flushed from the system.
5. Connect detergent tank to the syrup line and draw detergent through the valve for two minutes. Then, allow remaining detergent to stay in the system for five minutes.
6. Connect rinse tank to the syrup line. Draw clean rinse water through the valve until detergent is flushed from the system.
7. Remove valve nozzle and diffuser as shown in Daily Cleaning instructions. Using a plastic brush or a soft cloth and warm water, scrub the nozzle, diffuser, bottom of the dispensing valve and cup lever, if applicable.
8. Place removable valve parts (EXCEPT solenoids) in sanitizing solution for 15 minutes.
9. Replace valve diffuser and nozzle on the beverage valve.
10. Connect sanitizer tank to the syrup line and draw sanitizer through the valve for two minutes. Allow sanitizer to remain in the system for a minimum of 15 minutes.
11. Reconnect syrup and carbonated water lines.
12. Draw syrup through the lines to rinse the system. Discard drinks until at least two cups of satisfactory tasting beverage are dispensed through the valve.

Setting the Brix

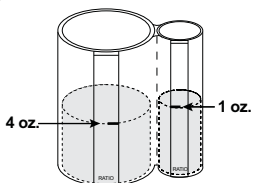
FLOMATIC BRIX CUP INSTRUCTIONS



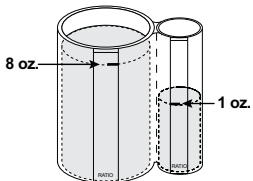
The Fromatic Brix Cup provides scale graduation on both the soda and syrup compartments. It is sized such that with a normal 5:1 product, the syrup and soda will be at the same level.



With each side of the cup graduated in ounces (or cc's), you can easily proportion a range of products from 2:1 through 11:1.



Set the soda flow rate first, then brix or adjust syrup to the desired ratio. If you want 4:1, adjust the syrup flow rate to have filled to the 1 oz. mark when you have delivered 4 oz. of soda.



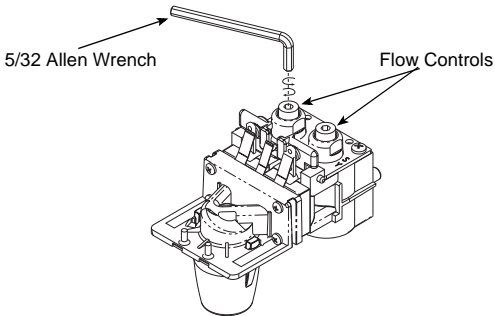
The diagram represents 4:1 and 8:1 but the cup will easily accommodate products from 2:1 to 11:1

Operation

Flow Rate

To simplify installation, the soda flow rate is optimized for cold carb operation and is preset at the factory: 3.125 oz./second soda water flow rate is standard for the 464-GP. Should field conditions require adjusting the flow rate, clockwise movement of the adjustment screw increases the flow rate and vice versa. Ceramic flow controls can be adjusted from 2 oz./second to 4.0 oz./second total flow rate on the GP valve.

RATIO CONTROL

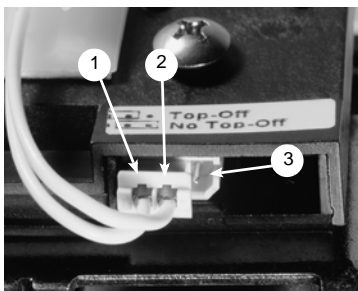


You will need a syrup separator, hex wrench (5/32 Allen), and brix cup. Place the Flomatic S-tube syrup separator (part no.1089-00) over the syrup diffuser. You need not remove the nozzle.

Most brix cups are calibrated for the standard 5:1 ratio. Adjust the syrup flow by moving the adjusting screw until the desired ratio is established.

Automatic Fill Valve

The Automatic Fill valve can be used to dispense both carbonated and noncarbonated products. The valve is factory set for carbonated products where a delayed top-off is standard, and the wire-lead plug should be attached to pins 1 and 2 (those furthest to the left). If your installation uses noncarbonated products requiring no top-off, you will need to adjust the position of the lever wire-lead plug on the electronics. For noncarbonated products, the wire-lead plug should be attached to pins 2 and 3 (those furthest to the right), as shown in the photo.



The Automatic Fill valve requires no sensitivity adjustments. The valve automatically delays top-off if more foam is present after the initial pour, and performs a top-off more quickly if less foam is present.

Troubleshooting

Checklist

If a problem arises during operation of your Flomatic Valve, follow the checklist below. Routine adjustments and maintenance procedures are not covered by the warranty.



Warning

Only trained and certified beverage technicians must service this unit. All wiring and plumbing must conform to national and local codes.

Problem	Possible Cause	To Correct
Water only dispensing: No pressure	Regulator(s) out of adjustment	Check/adjust regulator(s).
	Out of CO ₂	Install fresh tank.
	Defective regulator(s)	Check/repair/replace regulator(s).
	CO ₂ line pinched, kinked, or obstructed	Check/repair/replace CO ₂ line.
Syrup and CO ₂ only dispensing: Carbonator	No power	Check power supply. Plug in carbonator or reset breaker.
	Water supply	Make sure water is turned ON.
		Replace water filter.
		Check/clean/replace pump strainer.
		Check/clean/repair water check valve.
	Check for frozen water line. Internal Carbonator unit only.	
Defective carbonator	Check/repair/replace carbonator pump, motor, electrode or liquid level control.	
Syrup and plain water only dispensing: No pressure	Out of CO ₂	Install fresh tank.
	HP regulator out of adjustment	Adjust HP regulator to the proper setting.
	Defective HP regulator	Check/repair/replace HP regulator.
	CO ₂ line pinched, kinked, or obstructed	Check/repair/replace CO ₂ line.
One valve will not dispense anything: Is there power to the valve?	Broken wire or loose connection	Replace/repair wire or connector.
	Bad microswitch	Replace microswitch.

Problem	Possible Cause	To Correct
Beverage dispensed is too sweet: Is the ratio (brix) of the drink correct?	Flow control out of adjustment	Adjust the flow control.
	Insufficient soda flow due to low carbonator pressure	Adjust CO ₂ pressure or change the tank.
	Low CO ₂ pressure due to leaks	Repair CO ₂ leaks.
	Obstruction in the water or soda line	Clean out the lines.
Beverage is not sweet enough: Is the ratio (brix) of the drink correct?	Flow control out of adjustment	Adjust the flow control.
	Soda flow too high	Reset CO ₂ pressure or replace regulator if necessary.
	Obstruction in syrup line	Clean out the syrup line.
Drinks are foaming: Are system pressures correct?	Over carbonation	Check CO ₂ supply. Reset pressure or replace regulator is necessary.
	Dirty lines/valves	Clean/sanitize entire system.

Carbonated Water System

Qualifier	Probable Cause	Corrective Action
Flat drinks		
Malfunctioning of Refrigeration System.	Beverages at dispensing tower are above 40°F (5°C).	Refer to Troubleshooting "Refrigeration System" under Warm drinks .
Malfunctioning of Circulating System.		Refer to Troubleshooting "Circulating System" under Warm drinks .
Beverages at dispensing tower are below 40°F (5°C).	CO ₂ supply exhausted.	Verify CO ₂ Tank pressure is a minimum of 500 psi (35 kg/cm ²) on Primary Pressure Regulator Gauge marked 0-2000 psi. Switch to full tank if necessary.
		Ensure CO ₂ Shut-off Valves to Carbonators are both in the ON position. Refer to Troubleshooting "CO ₂ Gas System" under Flat drinks .
	Primary CO ₂ Regulator out of adjustment or inoperative.	Verify CO ₂ Primary Regulators are set at 90 psi (6.3 kg/cm ²). Adjust if necessary if Regulator will not stay in adjustment replace Regulator.
	Water Regulator incorrectly adjusted or inoperative.	Verify Filtered Water Pressure Gauge registers 55 psi (3.9 kg/cm ²), if higher than 55 psi, flooding of Carbonator will occur. To adjust, loosen Locknut, turn Adjustment Screw clockwise to increase, counterclockwise to decrease. If regulator will not respond to adjustments, replace regulator.
	Improper water treatment.	Verify By-pass handle is in the "filter operating" position. Ensure Filter Cartridge is still effective, if necessary replace Cartridge. Refer to Troubleshooting "Water Filter System"
	Carbonator Pump worn (Brass pump).	Dispense Carbonated Water while listening for carbonator pump and motor to cycle ON at Refrigeration Unit. Pumps should operated between 6 to 12 seconds before cycling OFF . If operating time exceeds 30 seconds carbonator pump is worn, replace Pump.
	Pressure Relief Valve is leaking.	Remove top cover from Remote Refrigeration Unit. Dispense Carbonated Water until carbonator Pumps and Motor cycle ON . Observe Pressure Relief Valves on carbonator Tank. If water is observed escaping from either, replace leaking Relief valve. Note: Do not confuse the Water Bath Make-up valve for the carbonator Tank Relief valves.

Qualifier	Probable Cause	Corrective Action
Beverages at Dispensing Tower are below 40°F (5°C). (continued)	Back Flow Preventer.	Remove top cover from Remote Refrigeration Unit. Use a soap solution around Back Flow Preventer. If bubbles appear at Vent Hole or underside of Back Flow Preventer, clean or replace Back Flow Preventer and corresponding Water Check valve carbonator Tank.
	Double Check valve (water) stuck open.	With top cover from Remote Refrigeration Unit removed and carbonator Pump Switch and Water turned OFF , loosen water supply line at inlet side of Double Check valve Assembly. If CO ₂ gas escapes from Check valve, it must be cleaned or replaced.

Qualifier	Probable Cause	Corrective Action
<i>No carbonated water at any of the dispensing valves</i>		
No CO ₂ gas or water present at dispensing valves.	Malfunction of Refrigeration System.	Refer to Troubleshooting "Refrigeration System" under No carbonated water at any of the dispensing valves (freeze up) .
	Malfunction of Circulating System.	Refer to Troubleshooting "Circulating System" under No carbonated water at any of the dispensing valves .
CO ₂ gas is present at dispensing valves but no water.	No power to carbonator.	Verify toggle switch for Carbonator is in the ON position and Main Power Supply is ON .
	Water supply restricted to carbonator pump.	Verify water to unit by observing Filtered Water Pressure Gauge. It should register 55 psi (3.9 kg/cm ²). To adjust, loosen Locknut, turn Adjustment Screw clockwise to increase, counterclockwise to decrease. If regulator will not respond to adjustments, replace regulator. Examine Water Shut-off Valve(s) to Carbonator and ensure they are in the ON position.
	Water Filter restricted.	Place Filter By-pass Valve into the Filter By-pass position. Replace Cartridge Filter. Reposition valve handle to "operating" position.
	Water Inlet strainer clogged.	Remove Filter Screen from Inlet Strainer in carbonator Pump (Brass), flush with water to clean and reassemble.
	Liquid Level Control defective.	Push Toggle Switch for carbonator and circulator to the OFF position. Shut OFF Main Power Supply unit. Remove electrical Access Panel from unit. Locate liquid level control. Using a pair of insulated needle nose pliers, carefully remove the white wire from the terminal marked "H" and the black wire from the terminal marked "L" on the Liquid Level Control Board. Position safely to side. Turn ON Main Power Supply. Push carbonator Switch to the ON position. If carbonator pump and motor do not cycle ON immediately, that Liquid Level Control is defective. Replace.
	Electrode Assembly defective.	If Liquid Level Control is operating, test the Electrode Assembly, refer to Probable Cause "Liquid Level Control Defective". Verify wire leads are dry and that they are not touching. If not, replace Electrode.

Qualifier	Probable Cause	Corrective Action
<i>No carbonated water at any of the dispensing valves (continued)</i>		
CO ₂ gas is present at Dispensing Valves but no water. (continued)	Carbonator Pump worn (Brass pump).	Dispense Carbonated Water while listening for carbonator pump and motor to cycle ON at Refrigeration Unit. Pumps should operate between 6 to 12 seconds before cycling OFF . If operating time exceeds 30 seconds, carbonator Pumps is worn, replace Pump.
	Motor defective.	If Motor will not operate, verify voltage across Motor Terminals with voltmeter. If voltage reads 110 to 120 VAC, the Motor or Pump is defective. Loosen the Coupling Clamp with a flat-blade screwdriver and disengage Pump from Motor. If Motor still will not operate with Pump disengaged, Motor is defective. Replace.
	Carbonator Pump frozen.	Loosen the Coupling Clamp with a flat-blade screwdriver and disengage Pump from Motor. By hand, turn the Coupling Key in back of Pump. If pump shaft will not spin freely, Pump is defective and must be replaced.

Qualifier	Probable Cause	Corrective Action
<i>Carbonator pump and motor will not cycle OFF (possibly noisy pump)</i>		
Little or no carbonated water at dispensing valve.	Primary CO ₂ Regulator adjusted at extremely high pressure.	Verify CO ₂ Primary Regulators are set at 90 psi (6.3 kg/cm ²). Adjust if necessary. If regulator will not stay in adjustment, replace regulator.
	Water supply to Carbonator Pump shut-off or restricted.	Verify water to unit by observing Filtered Water Pressure Gauge. It should register 55 psi (3.9 kg/cm ²). Examine Water Shut-off Valves to carbonator and ensure they are in the ON position. Examine Pump Strainer for restriction. Clean if necessary.
	Water Filter restricted.	Place Filter By-pass valve into the "Filter By-pass" position. If carbonator pump and motor immediately cycle OFF , Filter Cartridge is restricted. Replace Cartridge.
	Back Flow Preventer or Double Check Valve.	Examine Filter Water Pressure Gauge. If it registers 90 psi (6.3 kg/cm ²) CO ₂ gas is passing from the carbonator tank and through the Back Flow Preventer or Double Check Valve, preventing water from entering pump. Clean or replace Back Flow Preventer/Double Check Valve.
	Carbonator Pump worn.	Remove top cover from Remote Refrigeration Unit. Locate Toggle Relief Valve on Carbonator Tank and lift lever to allow CO ₂ gas to escape from Tank for 30 seconds. If during this time Carbonator Pump cycles OFF , pump is worn and should be replaced.
	Coupling Key defective.	Loosen the Coupling Clamp with a flat-blade screwdriver and disengage Pump from Motor. Examine Coupling Key in Pump. If defective, replace.

Qualifier	Probable Cause	Corrective Action
Carbonator pump and motor will not cycle OFF (possibly noisy pump) (continued)		
Carbonated water at dispensing valve.	Liquid Level Control defective.	Shut OFF main power supply to unit and push Toggle Switch for Carbonator and Circulator to the OFF position. Remove Electrical Access Panel from Refrigeration Unit and locate Liquid Level Control. Strip a 1-1/2" (3.8 cm) piece of solid strand wire of insulation to use as a jumper. Turn main power supply unit ON to unit. With a pair of insulated pliers, jump across Terminals marked "G, H and L" on Liquid Level Control. Simultaneously, while pushing corresponding Toggle Switch to "carbonator" to the ON position. If carbonator pump and motor continue to operate after Liquid Level Control Jumper Wire is in place, Liquid Level Control is defective, replace.
	Electrode defective.	Examine wire leads to ensure no breaks in connections. Remove and clean Electrode with fine sand paper and reinstall. <i>Note: Reversing Electrode Wire Leads on either electrode or Liquid Level Control will cause erratic operation of carbonator Motor. Refer to Wiring Diagram.</i>
Peculiar taste in carbonated water only.	Water filter contaminated.	Refer to Troubleshooting "Water Filter System" under Peculiar taste .
	Back Flow Preventer Valve leaking or Double Check Valve leaking.	Push Toggle Switch for carbonator to the OFF position. Turn Water Shut-off Valve to carbonator to the OFF position. Remove top cover from Remote Refrigeration Unit. Carefully disconnect water line on the outlet side of the carbonator pump. If water or CO ₂ is observed continually escaping from line, Back Flow Preventer/Double Check Valve is leaking. Disassemble, clean, and replace if necessary. <i>Caution: Carbonated water must never be allowed to flow through materials other than plastic or stainless steel. (Copper, zinc or galvanized material is non-acceptable.)</i>
	Carbonated water flowing through materials other than plastic or stainless.	Trace carbonated water flow through system. Ensure no foreign materials are present. Replace non-acceptable material if found.

Qualifier	Probable Cause	Corrective Action
Carbonator pump and motor will not cycle OFF (possibly noisy pump) (continued)		
Carbon particles in furnished drink.	Malfunction of Water Filter.	Refer to Troubleshooting "Water Filter System" under Carbon particles in finished drinks.
	Defective Carbonator Pump.	Remove top cover from Refrigeration Unit. Loosen Coupling Clamp with a flat-blade screwdriver and disengage pump from motor. Turn the Coupling Key by hand, in back of pump. If pump shaft does not turn freely and/or Carbon is found in pump, carbon veins are defective. Replace pump.
Carbonator Motor cycles ON and OFF in short cycles.	Defective Circulating Pump.	Refer to Troubleshooting "Circulating System" under Carbon particles in finished drinks.
	Electrode Assembly incorrectly wired or defective.	Examine wiring diagram found on Refrigeration Unit. Verify Electrode wiring leads are on proper terminals of both Electrode and Liquid Level Control. If problem still occurs, replace electrode.

Circulating System

Qualifier	Probable Cause	Corrective Action
Warm drinks		
Drinks warm throughout the day, warm all the time.	Malfunction of Refrigeration System.	Refer to Troubleshooting "Refrigeration System" under Warm drinks (carbonated water temperature over 40°F [5°C]) .
Drinks warm during periods of low demand, much colder during periods of high demand.	No power to Circulating Motor.	Verify Switch to Circulating Motor is in the ON position and Main Power Supply is ON .
Carbon Particles in finished drink.	Motor defective.	Using a flat-blade screwdriver, loosen the Coupling Clamp and disengage Pump from Motor. If Motor will not operate, verify voltage across Motor Terminal with voltmeter. If voltage reads from 110 to 120 VAC, the Motor is defective and should be replaced.
	Circulating Pump defective (stainless steel).	Dispense approximately 1 gallon of carbonated water at dispensing valves. If temperature of carbonated water drops, Circulating pump is not operating. Examine Coupling Key found between Pump and Motor Shaft. If coupling key is defective, replace. If key is operational, Circulating pump is defective, replace.
No CO ₂ gas or water present at dispensing valve.	Malfunction of Water Filter.	Refer to Troubleshooting "Water Filter System" under Carbon particles in finished drinks .
	Malfunction of Carbonated Water System.	Refer to Troubleshooting "Carbonated Water System" under Carbon particles in finished drinks .
	Circulating Pump defective (Stainless Steel).	Remove top cover from Refrigeration Unit. Loosen Coupling Clamp with a flat-blade screwdriver and disengage Pump from Motor. Turn Pump shaft with screwdriver. If Pump does not turn freely and/or carbon is found in Pump, carbon veins in pump are defective. Replace Circulating Pump.
CO ₂ gas is present at dispensing valves but no carbonated water.	Malfunction of Refrigeration System.	Refer to Troubleshooting "Refrigeration System" under No carbonated water at dispensing valve (freeze up) .
	Particles obstructing flow through Circulating Circuit (In-line Strainer).	Remove top cover from Remote Refrigeration. Push toggle switch to carbonator and circulator to the OFF position. Lift lever on Toggle Relief valve at top of carbonator Tank until pressure is completely released. Remove In-line Strainer Screen. Flush with clean water and reassemble.
	Malfunction of Carbonating System.	If CO ₂ gas is present at the Dispensing Valves and there is no water, the problem is in the Carbonated Water System. Refer to Troubleshooting "Carbonated Water System".

Dispensing Valve

Qualifier	Probable Cause	Corrective Action
All corresponding valves dispensing no syrup.	Malfunction of syrup system.	Refer to Troubleshooting "Syrup System" under No syrup or insufficient syrup in finished drink.
No syrup at only one dispensing valve.	Syrup Shut-off Valve closed or partially closed.	Remove top cover from Dispensing valve or Tower. Locate Syrup Shut-off Valve on right hand side of Dispensing valve. Verify shut-off is turned fully open.
	Mounting Block restricted.	Remove Dispensing valve from Mounting Block. Place cup over Syrup outlet on Mounting Block and carefully open Syrup Shut-off Valve. If little or no syrup is present, Mounting Block is restricted. Remove and clean mounting block. Replace if necessary.
<i>No syrup or insufficient syrup in finished drink</i>		
No carbonated water at half or all dispensing valves.	Flow Control out of adjustment or inoperative.	Readjust Flow Control to proper Brix. If no response, clean Syrup Flow Control. Replace if necessary.
	Valve Port restricted.	Clean Syrup valve Port Assembly.
	Seat swollen.	Replace Syrup Seat.
	Solenoid Coil defective.	Replace Syrup Solenoid Coil.
	Malfunction of Carbonated Water System.	Refer to Troubleshooting "Carbonated Water System" under No carbonated water at any of the dispensing valves.

Qualifier	Probable Cause	Corrective Action
<i>No carbonated water or insufficient carbonated water in finished drink</i>		
No Carbonated Water only at one dispensing valve.	Carbonated water Shut-off Valve closed or partially closed.	Remove top cover from Dispensing valve or Tower. Locate Carbonated Water Shut-off Valve on left hand side of Dispensing valve. Verify Shut-off Valve is turned fully open.
	Mounting Block restricted.	Remove Dispensing valve from Mounting Block. Place cup over Carbonated Water outlet on Mounting Block and carefully open Carbonated Water Shut-off Valve. If little or no Carbonated Water is present, Mounting Block is restricted. Remove and clean mounting block. Replace if necessary.
	Flow Control our of adjustment or inoperative.	Readjust Flow Control to proper Brix (5 oz in 4 seconds Standard valve, 10 oz in 4 seconds Fast Flow valve). If no response, clean Carbonated Water Flow Control. Replace if necessary.
	Valve Port restricted.	Clean Carbonated Water valve Port Assembly.
	Seat swollen.	Replace Carbonated Water Seat.
	Solenoid Coil defective.	Replace Carbonated Water Solenoid Coil.
	Carbonated Water Switch defective (black).	Replaced Carbonated Water Switch.

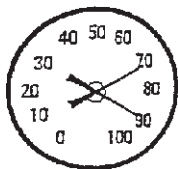
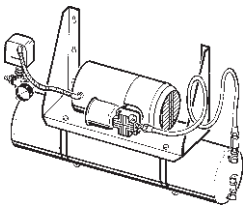
Qualifier	Probable Cause	Corrective Action
No water or insufficient water in finished drinks		
All valves dispensing noncarbonated drinks no water.	Water Shut-off Valve closed or partially closed.	Refer to Troubleshooting "Water Booster System" under Low or No Water Pressure at Noncarbonated Beverages .
Problem occurs at only one dispensing valve.		Refer to this section on No carbonated water at only one dispensing valve in the dispensing valve .
Too much Syrup, Carbonated Water or Water in finished drink. Problem occurs at only one dispensing valve.	Syrup, carbonated water, or noncarbonated water flow control out of adjustment or inoperative.	Readjust appropriate Flow Control. If Flow Control does not respond to adjustment, clean Flow Control. Replace if necessary. Carbonated Water Flow rates: (5 oz in 4 seconds Standard valve, 10 oz in 4 seconds Fast Flow valve).
Too much syrup in finished drink. All valves dispensing same flavor-too much syrup.	Malfunction of syrup system.	Refer to Troubleshooting "Syrup System" under Drinks too sweet .
Too much water in finished drink. All valves dispensing noncarbonated drink too much water.	Malfunction of water Booster system.	Refer to Troubleshooting "Water Booster System" under Qualifier: Pump and motor cycles ON and OFF excessively .
Syrup or Carbonated Water or Water dripping from Nozzle.	Valve port scarred.	Disassemble appropriate Syrup or Water Assembly. Examine valve Port for scars or nicks. Replace if necessary.
	Armature Spring or Retaining Ring broken.	Disassemble appropriate Syrup or Water Assembly. Examine Armature, Spring and Retainer Ring. If damaged, replace.
	Seat scarred or obstructed.	Disassemble appropriate Syrup or Water Assembly. Examine Seat, if scarred, replace. If foreign material is found in Assembly, remove, reassemble.
Valves will not activate when Selection Panel pressed. Problem occurs at two (2) or three (3) consecutive Valves on one (1) tower.	Transformer inoperative.	Verify wire leads from Transformer have solid connections. Switch low voltage lead from Transformer supplying power to left and right hand side of Tower. If Valves operate and the other three do not, Transformer is defective. Replace.
	Dispensing tower's ON and OFF Toggle defective.	If after switching Leads, the three valves still do not operate, the ON and OFF Toggle Switch is defective.

Qualifier	Probable Cause	Corrective Action
<i>No water or insufficient water in finished drinks (continued)</i>		
Problem occurs at all valves on one (1) dispensing tower.	No power to transformer or transformer defective.	Verify power with a voltmeter at wall outlet. Verify power across low voltage leads on transformer. If 24 volts are present ON and OFF Toggle Switch is defective. Replace.
Problem occurs at only one (1) dispensing valve.	Dispensing tower's ON and OFF is Switch defective.	Verify Main Power Supply and power at Transformer Leads replace ON and OFF Switch if operative.
	Poor connection on valve Wire Harness.	Trace wiring on defective valve and reconnect any loose wires. Clean and reconnect any corroded connections.
	Portion Control Timer inoperative.	Replace the problem valve Portion Control Timer with a known Operative Timer. If valve then operates, Portion Control Timer was defective. Replace.
	Selection Switch inoperative.	Replace defective Portion Control Timer with operative Timer. If Valves still will not activate, Selection Panel is defective. Replace Selection Switch.
	Poor connection at Contact Clips on Selection Panel (with Portion Control Timer).	Examine Contact Clips on Selection Panel and ensure proper contact between Portion Control Timer and Contact Clips.
Valve will not shut OFF .	Moisture on Portion Control Timer or Contact Clips.	Remove top cover from Dispensing Tower. Remove all moisture from Portion Control Timer and Contacts.
	Portion Control Timer Adjustment Screw turned beyond control limit.	Turn Portion Control Adjustment Screws on defective valve counterclockwise 10 complete turns. If valve shuts off when selection is pressed, readjust for proper portions. Note: Several revolutions may be necessary to bring control back into range.
	Portion Control Timer defective.	Verify above probables are not the problem. Push ON/OFF Switch for Dispensing Tower to the OFF position. If valve ceases to dispense when pushed to ON position, Portion Control Timer is defective. Replace.
	Selection Panel defective.	Push ON/OF Switch for dispensing tower to the OFF position. If valve ceases and then continues to dispense when switch is pushed in ON position, Selection Panel is defective. Replace.

Qualifier	Probable Cause	Corrective Action
<i>No water or insufficient water in finished drinks (continued)</i>		
Foaming of finished products.	Nozzles, Syrup Tube Diffusers dirty.	Remove and clean Nozzle Assemblies and reassemble.
	Warm drinks.	Refer to Troubleshooting "Refrigeration System" under Warm drinks .
	Incorrect pressure on syrup.	Verify pressure supplied to sugar base products is at 60 psi (4.2 kg/cm ²). Adjust Medium Pressure Regulator if necessary. Verify pressure supplied to diet product is at 15 psi (1.1 kg/cm ²). Adjust Low Pressure Regulator if necessary. Note: <i>Ensure the Low Pressure Supply Line has not mistakenly been switched for a Medium Pressure Supply Line on the diet tank.</i>
	Change-over Valve Medium or Low Pressure is in the wrong position.	Verify valve Medium to Low Pressure is in the Low Pressure position for diet products.
	Air or CO ₂ gas in syrup line.	Replace empty Syrup Tank. Dispense Syrup from valve until consistent flow is achieved and product stabilizes. If evidence of air is still entering line, replace Liquid Disconnect which is allowing air to be drawn into syrup supply.
	Flake ice.	Only cube ice should be used for carbonated beverages.
	Improper adjustment of valve.	Ensure carbonated water flow is properly set (5 oz. in 4 seconds standard valve, 10 oz in 4 seconds Fast Flow valve). Ensure Brix is properly set. Adjust as necessary.
Unit totally inoperative; all electrical switches in the ON position.	Power failure, all power to system is OFF , or Fuse/Circuit Breaker is "open".	Check Circuit Breaker. Reset. Examine Time Delay, replace if necessary.

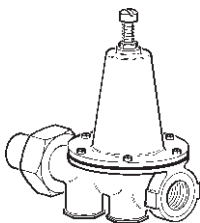
When the Brix is OFF

Air Compressor



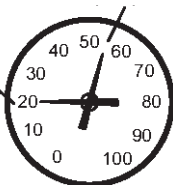
70 psi (4.8 bar) ON
90 psi (6.2 bar) OFF

Filtered Water Pressure

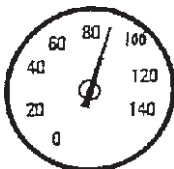
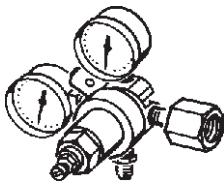


Service
Filters

Maximum Efficiency
55 psi (3.8 bar)



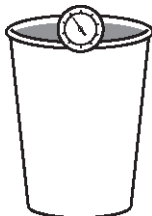
CO₂ High Pressure at CO₂ Tank



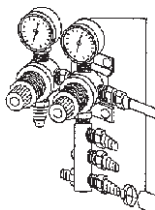
90 psi (6.2 bar) to 105 psi (7.2 bar)

Drink Temperature

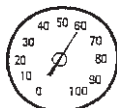
Below 39°F (3.9°C)



Bag-In-Box Usage



Medium Syrup Pressure



60 psi (4.1 bar)

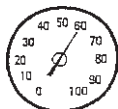
Syrup Tank Usage

Low Syrup Pressure



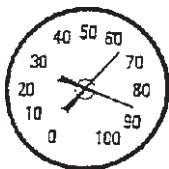
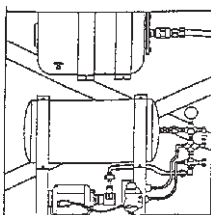
15 psi (1.0 bar)

Medium Syrup Pressure



60 psi (4.1 bar)

Pressurized Filtered Water Pressure (Water Booster)



65 psi (4.5 bar) ON
85 psi (5.9 bar) OFF

WHEN USING A MULTIPLEX REFRIGERATION UNIT

Problem	Probable Cause	Solution
Drink too warm.	Refrigeration switch OFF .	Turn ON refrigeration switch.
	Condenser dirty.	Have condenser cleaned.
	Condenser obstructed.	Remove any objects blocking the air flow in or out of the unit.
	Circulator switch OFF .	Turn ON circulator switch and allow time for drinks to cool.
		<p>Note: If service is required, you can continue to dispense cold drinks by completing following this procedure.</p> <ol style="list-style-type: none"> 1. Turn OFF the compressor switch and agitator switch. 2. Drain the water from the water bath. Reinstall the grey plastic over-flow pipe. 3. Fill water bath with ice from the ice machine. 4. Monitor frequently. Refill as needed.
Not enough carbonation.	CO ₂ Shut-off Valve OFF .	Open Shut-off Valve.
	CO ₂ cylinder empty.	Switch over to a new cylinder and dispense carbonated water until carbonation returns.
Product foaming.	Dirty or sanitizer soaked.	Clean or replace nozzles.
	Warm drinks.	See "Drink too warm" under Problem above.
No syrup dispensed.	Empty syrup container.	Replace syrup container.
	Air Compressor is OFF .	Turn ON and plug-in the Air Compressor.
	Change-over valve centered.	Position switch totally on either air or CO ₂ .
No carbonated water dispensed.	Carbonator turned OFF .	Turn ON carbonator switch.
	Water supply turned OFF .	Turn ON water to the system.
Product has an off taste.	Dirty nozzles.	Clean or replace nozzles.
	Out of date syrup.	Replace with fresh syrup.
	Saturated water filters.	Replace water filters.

Component Check Procedures

RATIO

- Look for foreign matter in the adjustment screws, flow controls or pallet seats. If a system is not flushed completely at start-up, foreign particles may be introduced into the system. Reset the flow rate and readjust the syrup ratio.

BUZZING

- Do not lubricate the plungers. If contaminated, simply wash with hot water, dry and reinstall.

LEAKS

- Check for damaged or improperly fitted O-rings. The slightest piece of hair, dust, etc., on the sealing surface may contribute to a leak. When in doubt, replace an O-ring. Be sure you have the correct O-ring and fitting combination for the respective mounting plate.

Every 6 months (2 times per year)

- Using Brix cup and syrup separator, check for proper carbonated water flows (standard flow: 5 oz. in 4 seconds, fast flow: 10 oz. in 4 seconds) and syrup to water ratios at each dispensing station. Adjust as required.
- Inspect beverage conduits for damage. Re-insulate and seal any uninsulated areas.
- Inspect floor chases and seal any open chase ends.
- Inspect air compressor to verify cut-in at 70 psi (4.8 bar) and cut-out at 90 psi (6.3 bar). Adjust pressure switch if necessary.
- Inspect system for air leaks and repair as required.
- Verify that incoming water pressure is not less than 40 psi (2.8 bar) or greater than 60 psi (4.1 bar). If equipped with a water regulator, verify proper setting of 55 psi (3.8 bar). Adjust if necessary.

- If pressure is low, inspect water filter cartridges to ensure they are able to supply adequate water pressure under normal system flow. Replace if unable to provide minimum 20 psi (1.4 bar) under load.
- Inspect syrup lines for proper flavor identification labels. Replace labels if necessary.
- Disconnect syrup containers. Clean connector with soap and warm water. Rinse with plain water and reconnect to syrup containers.
- Inspect pressure setting at CO₂ high pressure regulator. Verify proper 90 psi (6.2 bar) to 105 psi (7.2 bar) pressure setting. Adjust if necessary.
- Inspect pressure setting at syrup pressure regulators. Verify proper pressure setting. Adjust if necessary.
- Inspect system for CO₂ leaks. Repair as required.

WATER FILTERS

- Verify that incoming water pressure is not less than 40 psi (2.8 bar) or greater than 60 psi (4.1 bar). If equipped with a water regulator, verify proper setting of 55 psi (3.8 bar). Adjust if necessary.
- If pressure is low, inspect water filter cartridges to ensure they are able to supply adequate water pressure under normal system flow. Replace if unable to provide minimum 40 psi (1.4 bar) under load.

SYRUP SUPPLY

- Clean general area of syrup hookup with soap and warm water. Rinse off all soap.
- Inspect syrup lines for proper flavor identification labels. Replace labels if necessary.
- Disconnect syrup containers. Clean connector with soap and warm water. Rinse with plain water and reconnect to syrup containers.

CO₂ GAS SUPPLY

- Inspect pressure setting at CO₂ high pressure regulator. Verify proper 90 psi (6.3 bar) to 105 psi (7.2 bar) pressure setting. Adjust if necessary.
- Inspect pressure setting at syrup pressure regulators. Verify proper pressure setting. Adjust if necessary.
- Inspect system for CO₂ leaks, repair as required.

BEVERAGE CONDUITS

- Inspect beverage conduits for damage. Re-insulate and seal any uninsulated areas.
- Inspect floor chases and seal any open chase ends.

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Component Specifications

Flow Rates

Model	Flow Rate	Type of Valve
424	1-1/2 to 3 oz./sec	Post-Mix
464	2 to 4 oz./sec	Post-Mix

424 Specifications

Type	Sanitary Push Lever	Push Button	Portion Control	Automatic Fill Lever
Dimensions	2 1/2"W x 5 5/8"D x 9"H 63.5 x 142.9 x 228.6 (mm)	2 1/2"W x 5 5/8"D x 51/8"H 63.5 x 142.9 x 130.2 (mm)	2 1/2"W x 5 5/8"D x 51/8"H 63.5 x 142.9 x 130.2 (mm)	2 1/2"W x 5 5/8"D x 123/8"H 63.5 x 142.9 x 304.8 (mm)
Model Number	424-CF-E36-1521	424-CF-S36-1525	424-CF-P36-1500	424-CF-A36-1521
Mounting Blocks	380-Q or 372-Q	380-Q or 372-Q	380-Q or 372-Q	380-Q or 372-Q
Options	Add-a-Lever; field conversion options available for push button and portion control manual option available	Add-a-Lever; field conversion options available for push button and portion control	Add-a-Lever; field conversion options available for push button and portion control	Add-a-Lever; field conversion options available for sanitary lever, push button and portion control

464 Specifications

Type	Sanitary Push Lever	Push Button	Portion Control	Automatic Fill Lever
Dimensions	2 1/2"W x 5 5/8"D x 9"H 63.5 x 142.9 x 228.6 (mm)	2 1/2"W x 5 5/8"D x 51/8"H 63.5 x 142.9 x 130.2 (mm)	2 1/2"W x 5 5/8"D x 51/8"H 63.5 x 142.9 x 130.2 (mm)	2 1/2"W x 5 5/8"D x 123/8"H 63.5 x 142.9 x 304.8 (mm)
Model Number	464-GP-E36-1621	464-GP-S36-1625	464-GP-P36-1600	464-GP-A36-1621
Mounting Blocks	380-Q or 372-Q	380-Q or 372-Q	380-Q or 372-Q	380-Q or 372-Q
Options	Add-a-Lever; field conversion options available for push button and portion control manual option available	Add-a-Lever; field conversion options available for push button and portion control	Add-a-Lever; field conversion options available for push button and portion control	Add-a-Lever; field conversion options available for sanitary lever, push button and portion control

Product Viscosity

The Flomatic post-mix valve is capable of dispensing up to 250 cps and has industry standard orifice sizes through the valve block.

- **WATER = 1 centipoise (cps)**
- **Honey = 2,000 centipoise (cps)**
- ***Mountain DEW* = 34 centipoise (cps)**

NOTE: Products above 50 cps, with pulp, would need to be tested to verify use in a post mix valve. Pulp content, more than 10% can be problematic. Dispensing products higher than 250 cps may be possible but would also need testing to verify.



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