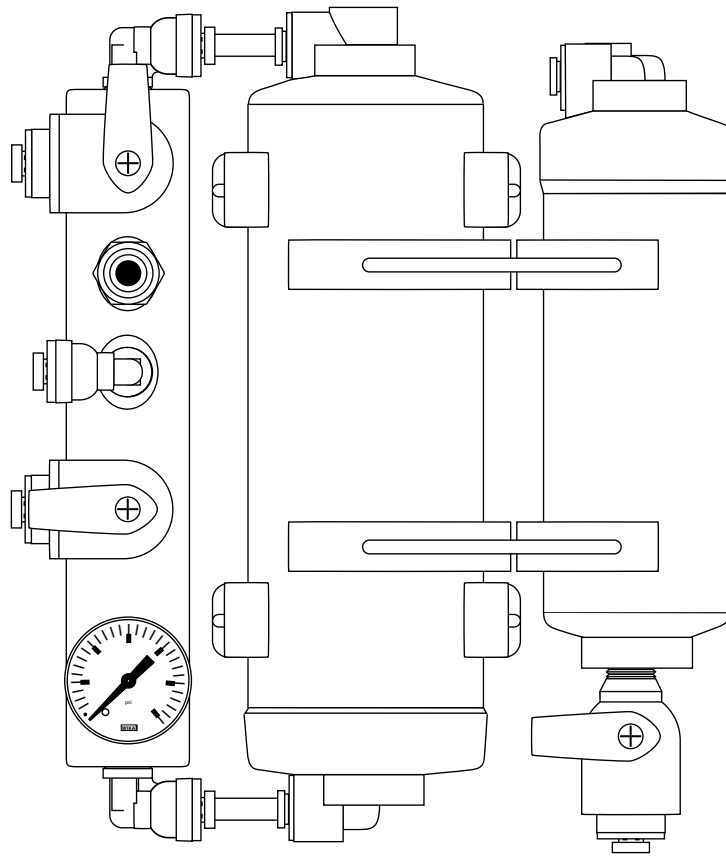




Installation Guide and Owner's Manual



Model 1000

This manual MUST be left with user as it contains maintenance instructions!

Table of Contents

Installation Schematic	3
Installation Summary	4
Special Notices, Warnings & Reminders	5
Installation Guide & Check Valves	6-9
Multiple Outlet Connections Schematic	10
Owner's Manual & Maintenance Guide	11-13
Step-by-Step Line Cleaning & Rinsing Procedures	13
Bypassing the System	13
Injection Port Assembly Cap	14
Backflow Preventers and Annual Testing	15-16
Backflow Preventers Testing and Maintenance Records	17-18
Limited Warranty Statement	19
System Records Chart	Back Page

VistaClear™ is a proprietary dental waterline treatment system that is intended to provide improved water quality and reduce bacterial contamination in dental unit water lines used for irrigation, cooling, lubrication and scaling procedures. This comprehensive system combines all of the desired methods recommended for treating dental waterlines – filtration; independent, off-line operation potential; and, a simple chemical treatment feeding system. It also has the ability to remove or significantly reduce other contaminants like water-soluble heavy metals, herbicides, pesticides and organic solvents, chlorine, chloramines, trihalomethanes and while also reducing hard water scaling potential.

The system attaches centrally in your office and provides filtered water to each of your dental control centers delivering clean, fresh water to all handpieces, air/water syringes, scalers and quick disconnects. The system is ideally installed in an equipment room, hallway or cabinetry in a central location within an office. The specialized manifold, injection port, multi-stage filter and proprietary mixing chamber are a powerful combination of technologies that offer maximum treatment potential, ease of use and low maintenance. Just read over the long list of benefits and features *VistaClear* will bring to your practice.

Included with every *VistaClear* system is a free bottle of our *VistaClean* Irrigant Solution Concentrate. *VistaClean* is an aqueous cleaner derived from natural citrus botanicals designed for use in dental unit waterlines. It may be used in waterlines continuously or intermittently as desired. See the Line Cleaning section of this manual for usage details. As an aqueous cleaner, *VistaClean* has the ability to safely and effectively emulsify organic and inorganic contaminants, soils, and oxidation products. When used according to directions, it is completely non-toxic, safe for the environment, non-corrosive, simple to use and have no negative effect on bonding.

Read this manual thoroughly and keep it with your permanent records after installation. You will also probably need it as a reference guide for the first few times you perform your routine maintenance. Return your warranty registration form immediately upon installation and contact your distributor with any questions you may have. Thanks again for your wise decision to invest in *VistaClear*!

Manufactured by:

Vista Research Group, LLC

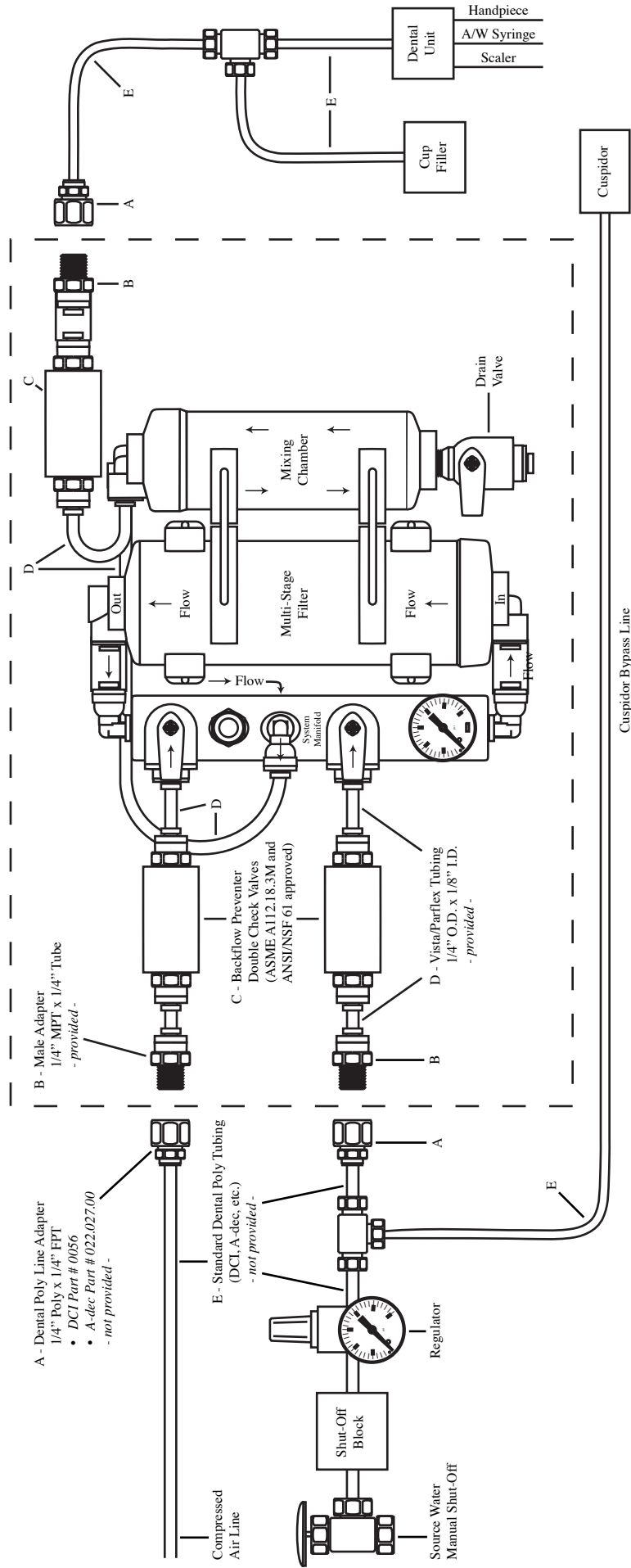
P.O. Box 321 / Ashland / Ohio / 44805-0321 / USA

419.281.3927 PH VistaResearchGroup.com info@vistaresearchgroup.com 419.281.7380 FX



Installation Schematic for VistaClear Model 1000

Pat. No. 6,423,219 and other patents pending



IMPORTANT

- All items within the dashed lines are included with the **VistaClear** system (except mounting screws)
- **Vista (Parflex)** tubing **MUST** be used on the system and all fittings within the dashed lines (1/4" O.D. x 1/8" I.D. tubing is included)
- Do **NOT** use tubing inserts with **Vista (Parflex)** tubing
- The **VistaClear** system **MUST** be connected to the water system **AFTER** the dental waterline shut-off block and pressure regulator
- If a cuspidor is present, **ALWAYS** feed the below directly from the unfiltered water supply - **NEVER** from the **VistaClear** system
- In-line check valves ("C" above) must **ALWAYS** be used - be sure to install them in the proper flow direction as shown
- The maximum operating pressure for air and water into the **VistaClear** system is 100 psi - preferably 40 psi for both water and air

Installation Summary for *VistaClear* Model 1000

1. Read the complete “Installation Guide” of this booklet before proceeding.
2. Record the System and Filter serial numbers found on the back of each component on the YELLOW Warranty Registration Form found in the box BEFORE you begin installation! Ask the dental staff to make and keep a copy of the completed form for their records. It’s critical that Warranty Registration Form be returned to Vista Research Group, LLC for the following reasons:
 - *The systems are not placed into our national registry unless we receive the form*
 - *Without the form, we have no way to notify the dentist when it’s time to replace his/her system filter element*
 - *Without the form, we have no way to notify the dentist of improved, streamlined maintenance procedures or new chemical cleaning agents found to be helpful*
 - *The form tells us to provide the dentist with DUWL Water Treatment System Registry Certificates and Patient Pamphlets – without the form, they will NOT be sent*
3. Refer to the all of the schematics in this document. The system simply installs in a central location and supplies water to the dental unit in each operatory. Make certain to run a city water bypass line to any cuspidor bowl that may be present. Cup fillers should be supplied with *VistaClear* water.
4. Make certain to install and set the Air and Water Regulators that are included with each system. Both should be set at 40 psi.
5. Make clean, burr-free cuts on all tubing ends before inserting into fittings. Be certain to push tubing into fittings the full 11/16” to avoid leaks. The first resistance you feel when inserting the tubing into fittings is when the tubing passes through the stainless steel gripper – the second resistance is when the tubing passes through the “O” ring.
6. Make certain that the system is always mounted VERTICALLY and is level. See the special section in this manual on the proper mounting of the system. The system can be mounted on a flat wall, in a custom cupboard or in the optional built-in cabinet.
7. After each system is installed and pressure tested for leaks, follow the “*Line Cleansing Procedure*” followed by the “*Line Rinsing Procedure*” in the “*Owner’s Manual and Maintenance Guide*” section of this manual.
8. Briefly explain the system to the office persons responsible for maintenance and review the cleansing and rinsing procedures. It has been determined that the best results are obtained when *VistaClean* is used immediately upon installation and on a regular basis. A complimentary bottle of *VistaClean* is included with each system. Explain that additional bottles of *VistaClean* can be purchased from their distributor or dealer and that they should do a cleaning about once per month or quarterly if they follow the 15 Second Protocol described in “*Owner’s Manual and Maintenance Guide*” section of this manual. Filter elements should be replaced each year. Other system components are permanent.

**** Please call if you have any questions about installation or operation of the system ****

Special Notices, Warnings & Reminders

For *VistaClear* Model 1000 System

To ensure that your new *VistaClear* Dental Waterline Treatment System provides many years of trouble free service, please observe the following:

1. Read the complete Installation Guide & Owner's Manual to completely understand the installation, maintenance, capabilities and limitations of the system.
2. It is strongly recommended that the hard plumbing required for this system be done by a trained, authorized professional contractor who is familiar with all local codes working in conjunction with an authorized dental dealer technicians. See page 5 for system plumbing and water quality specifications.
3. **BYPASSING the SYSTEM** – The Model 1000 single operator *VistaClear* system can only be bypassed by disconnecting and reconfiguring the tubing. It's important that these instructions are followed to avoid 1) inadvertent bypassing of unfiltered water to the dental unit and, 2) bypassing of any sediment or other contamination that could possibly affect the proper functioning of the *VistaCheck* backflow preventer valve located on the operatory leg. See the diagram on page 3 and below for complete details.
 - a. **Close** the water inlet feed valve and **open** the drain valve on the Mixing Chamber to relieve all system pressure. The pressure gauge should read 0 psi before proceeding.
 - b. Disconnect the water inlet feed line just after the regulator (A/B).
 - c. Disconnect the tubing from the inlet side of the downstream *VistaCheck* running from the "outlet" line from the Mixing Chamber.
 - d. Connect a section of 1/4" O.D. temporary tubing from the fitting just after the regulator to the inlet side of the *VistaCheck* so that backflow protection remains in the system.
 - e. If the system is ever bypassed for any reason, it should be bypassed for only as long as is necessary to accomplish the maintenance or repair and disconnected as soon as possible. The temporary bypass tubing should be removed and all connections re-established.
 - f. If the system is ever bypassed for any reason, a complete system cleansing procedure should be performed as described on pages 9-11, elements
4. All filter elements should be changed **at least once per year** or after every 150 gallons (567 liters) of use, whichever ever occurs first.
5. The system should **never** be operated unless all filter elements are installed their proper location.
6. All *VistaCheck* backflow preventer valves downstream of the Distribution Manifold on the system should be checked **at least once per year** to make certain they are working properly. Follow the steps on page 18 to perform this simple but important testing procedure. This is best done while changing the filter elements.
7. Remember to complete and return the warranty registration form immediately upon installation. It is very important that we receive your registration form so that we can 1) place your name in the national *VistaClear* systems registry, 2) send you a reminder to change your filter elements and test your backflow preventers, 3) notify you of improved, streamlined maintenance procedures or new line cleaning agents, and 4) send you system registry certificates and patient pamphlets.

**** Please call or visit the website if you have any questions about installation or operation of the system ****



Installation Guide

The *VistaClear* Dental Waterline Treatment System is intended to provide improved water quality and reduce bacterial contamination in dental unit waterlines used for irrigation, cooling, lubrication and scaling procedures. It can be installed in a variety of configurations and in any number of dental operatory situations including rear delivery, side delivery, radius and other system layouts. Although actual installation of *VistaClear* is quite simple, it is recommended that a professional technician familiar with dental operatory systems perform the installation due to the wide variety of possible options, running of water and air lines, drain lines, etc. He/she is familiar with the local plumbing codes and techniques for successful dental equipment installations.

Please read this entire manual before proceeding with installation and operation.

Please make certain that anyone responsible for future operation and maintenance of the system is familiar with all details contained in the installation and maintenance manuals.

Please keep the maintenance manual handy for future reference.

Please return the Warranty / Registration form immediately upon installation.

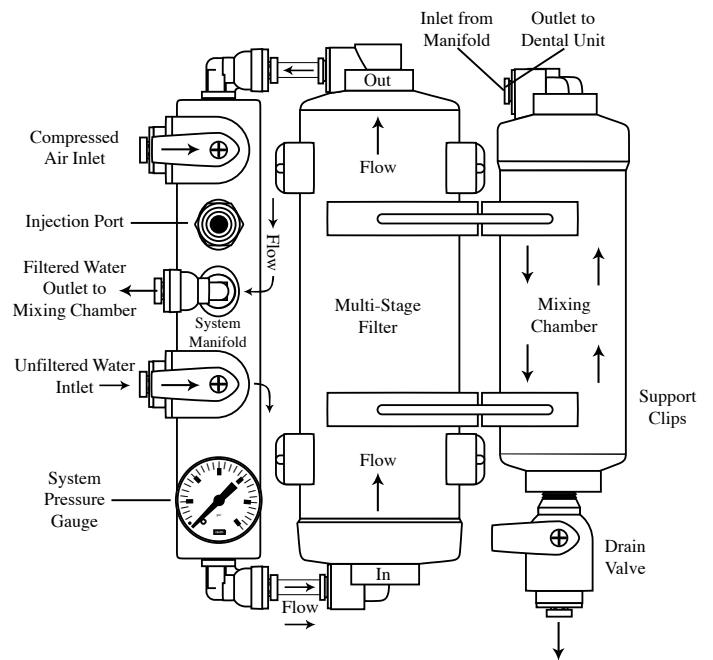
Always follow local plumbing codes.

Note the following specifications before proceeding:

VistaClear Model 1000 Specifications

Maximum Temperature	100° F
Minimum Temperature	45° F
Maximum Pressure	100 psi
Minimum Pressure	10 psi
Optimal pH Range	6.5 - 8.5
Maximum pH Range	5.5 - 9.5
Maximum Influent Manganese	0.05 ppm
Maximum Influent Iron	0.1 ppm
Maximum Influent Hydrogen Sulfide	0.5 ppm
Maximum Influent Chlorine/Chloramine	5 ppm
Maximum Continuous Flow	0.2 gpm (0.76 lpm)
Filter Element Service Life	1 yr. or 150 gal (567 L)
Filter Element Replacement Order #	R 5450

VistaClear Model 1000



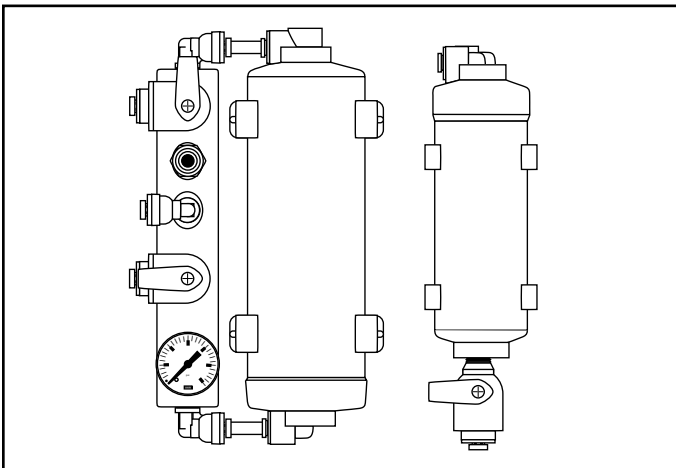
UNPACKING – Carefully unpack the contents of the product carton. It should include the system, Installation Guide, Owner’s Manual & Maintenance Guide, Warranty Registration sheet, Warranty statement and an accessory pack that includes a bottle of *VistaClean*, a 35cc plastic syringe, tubing inserts and check valves. Check to make certain there was no damage during shipment. If damage is evident, contain the shipping company immediately.

DATA – Locate the serial tags on the manifold and the filter element of the system. Record the serial numbers for each on the Warranty Registration sheet and in the data section of the Owner’s Manual and Maintenance Guide. The serial number for the system (on the manifold) is a permanent number for the life of the system. The serial number on the filter element will change each time the element is replaced (at least annually). Write the date of installation and the installer’s name on the label found on both the manifold and the filter element. You **must use a fine tip, permanent marker (e.g. a Sharpie®)** or some other writing instrument that will not smear.

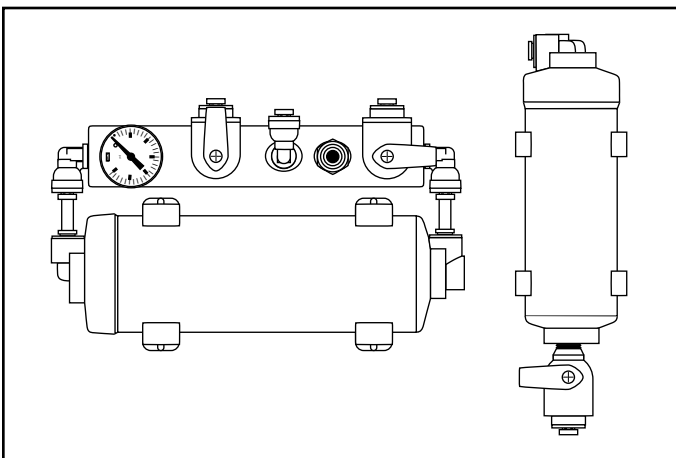
TOOLS: Typical tools required vary but typically include a sharp razor knife or tubing cutter, measuring tape, drill, assorted bits and screws, screwdrivers, wrenches, cotton swabs and clean rags.

LOCATION: The *VistaClear* system can be installed nearly anywhere in the typical dental operator or hygienist's suite. The preferred location would be inside the dental cabinet for rear and side delivery systems. Since the system is modular, the manifold/filter element assembly can be separated from the mixing chamber. In the case of a radius or over-the-patient delivery system, for example, the manifold/filter element assembly can be mounted inside the junction box or under the chair and the mixing chamber mounted on the 2" post or other location. All that is required is that the **mixing chamber module of the system be mounted vertically** and that a pressurized supply of water (potable municipal water or well water), compressed air and (preferably) a drain be nearby the manifold/filter assembly. In deciding where to install the system, remember that the goal is to filter all of the water that is delivered to the dental control center for use in handpieces, air/water syringes and scalers. The following sketches show two of the many possible installation orientations that are acceptable:

#1 - Vertical / Plumbing Left (Most Preferred)

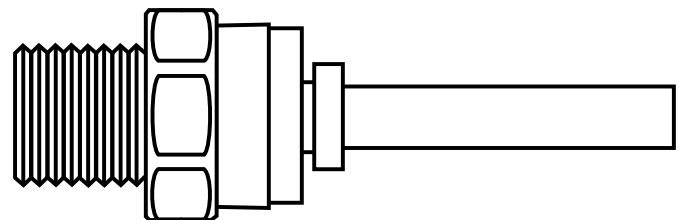


#2 - Horizontal / Plumbing Top



MOUNTING: The *VistaClear* system comes standard with 2-2.5" 'C' clips attached to the filter element and are designed to be mounted with a screw on any flat surface. The manifold is mounted to the filter element with two 1/2" O.D. polypropylene tubes. The mixing chamber is mounted to the filter element with 2-2.5" x 2" double 'C' clips. The mixing chamber can be removed from the filter element and mounted independently using optional 2" 'C' wall mount clips or 2" x 2" double 'C' post mount clips. Remember that the system is modular and can be separated as needed as long as the mixing chamber is always **mounted vertically**. Again, #1 above is preferred since the air moves more efficiently through the system during maintenance sessions but the manifold and filter element can be mounted in virtually any position if necessary. Simply select your mounting location, remove the clips, mark the location, drill holes, mount the clips, and firmly snap the filter element and/or mixing chamber into the clips.

TUBING & CONNECTIONS: Fittings and valves used on the *VistaClear* system are patented "push-to-connect" thermoplastic. Components are manufactured from FDA compliant materials and are NSF-51 listed. Tubing to be used must be 1/2" O.D. and can include polyethylene, polypropylene, polyurethane, Teflon® or nylon. Since all fittings have stainless steel gripper collets, 1/8" soft copper tubing may also be used and is actually recommended where possible to connect supply water to the system at the valve labeled "Unfiltered Water Inlet." A soft copper line running from the main water supply line to the *VistaClear* will help resist growth of microbes in the line preceding the system.



!!! IMPORTANT !!! All tubing must have square-cut ends with NO burrs and NO scars on the surface of the tubing. Burrs can easily damage the internal "O" rings and scars/scratches on the surface of the tubing can create a leak path for water to get by the "O" ring that will cause a leak. It is strongly recommended that installers use a sharp tubing cutter designed for small diameter poly tubing or, if not available, use a sharp razor knife. For copper lines, use a copper tubing cutter and use a file and steel wool on the tip to remove any and all burrs. If a leak occurs, depressurize the system, remove the tubing, cut a new end and replace. If the connection still leaks, the fitting or valve "O" ring may have been permanently damaged and will need to be replaced.

Suggested Tubing Colors for:

1. “Unfiltered Water Inlet” – Soft Copper, if possible, or RED poly if not
 2. “Filtered Outlet Water to Mixing Chamber” – BLUE poly
 3. “Outlet to Dental Unit – BLUE poly
 4. “Compressed Air Inlet” – YELLOW poly
 5. “Drain Valve” – CLEAR poly
- (see assembly illustration on cover)

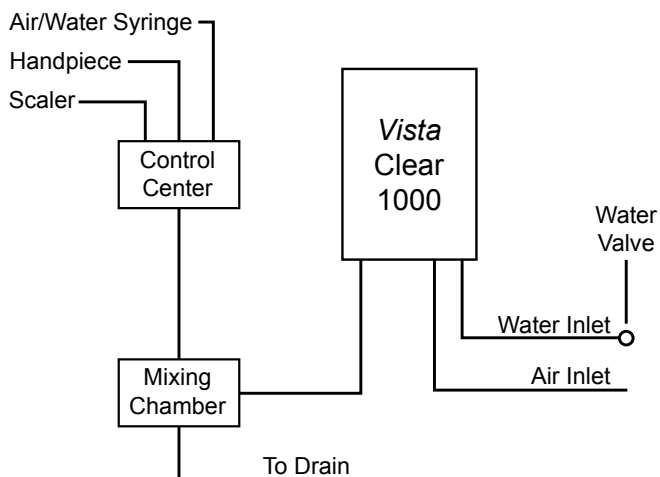
Cleaning Tubing & Fittings:

1. Add about 8 drops of the **VistaClean** Irrigant Solution concentrate to about one cup (8 oz. / 239 ml) of water.
2. Dip a cotton swab into the solution and clean the opening of each valve and fitting.
3. Using the provided syringe, draw some of the diluted **VistaClean** solution into the syringe.
4. Over a sink or bucket, discharge the solution into the various lengths of tubing allowing a 10 minute contact time. Then clear all of the solution from each of the lengths of tubing with air from the syringe.

Tubing Installation Summary:

1. Make certain ends of tubing are square and clean.
2. Mark tubing 11/16” back from end – this is the tubing plunge depth into the fitting.
3. To install ... Push tubing into fitting until it bottoms out – the mark you made on the tubing will help you see that the tubing has been pushed completely into each fitting. A slight twist while pushing helps.
4. To remove ... Depress collet and pull tubing out. A gentle twist while pulling helps the tubing release.

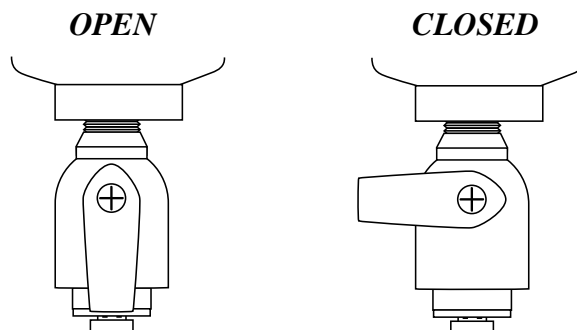
TYPICAL INSTALLATION CONFIGURATION:



WATER SOURCE: Water to be treated by the **VistaClear** system can come from municipal water, well water or any other potable, pressurized supply. The system is designed to filter only **COLD** water.

DRAINS: The system drain is found at the bottom of the mixing chamber and can simply be fitted with a short section of tubing and water/fluids discharged into a bucket, pan, cup, etc. However, it may be more convenient to connect the tubing to a formal drain. Drain configurations vary greatly but all must have a proper air gap and/or other device to prevent possible siphoning. Please check your local plumbing codes for proper drain installation regulations and techniques.

VALVE OPERATION: Valves with handles in these positions are



PRESSURIZING & TESTING THE SYSTEM: Check to see that all tubing connections are made correctly. Close the “Drain” and “Air Inlet” valves and slowly open the “Unfiltered Water Inlet” valve allowing water to enter the system. As the system is filled with water and pressurized, check for any leaks. (Note: it is common to see a few drips come from the “Injection Port” until the system is fully pressurized) Open the “Drain” valve and allow water to run to drain for a few minutes. Close the “Drain” valve then begin to discharge the air/water syringe and other appliances at the dental control center. Check to see that all appliances are receiving water and are working properly. Now close the “Unfiltered Water Inlet” valve and open the “Compressed Air Inlet” valve. The water in the mixing chamber will now be delivered to the dental appliances by the compressed air when they are discharged. Discharge the appliances until the 6-7 ounces of water stored in the mixing chamber has been dispensed. Air will begin to emerge from each appliance after the water is gone. This is how to clear all lines of water and prepare for line cleaning or when a system is to be shut-down for a period of time. Holding each appliance open for a few moments when valves are in these positions will “dry” lines. Now close the “Compressed Air Inlet” valve, open the “Unfiltered Water Inlet” and let the system fill with water and pressurize. Once again check for leaks. The installation is now complete. Consult the “Owner’s Manual & Maintenance Guide for operational instructions.

PREPARING THE SYSTEM FOR USE: After making certain there are no leaks in the system, follow the steps in the “Line Cleansing Procedure” of the Owner’s Manual & Maintenance Guide. Use the “*Cleaning Mode*” formula found in the instructions for mixing and injecting the *VistaClean* since the goal will be to perform an aggressive cleaning of the preexisting dental waterlines since they are, most likely, that are most likely very contaminated. *VistaClean* will help clean the lines by reducing the amount of organic and inorganic matter, oxidized particulate, films, etc. Allow the residual of *VistaClean* to remain in the lines for at least 60 minutes then follow the “Rinsing” procedure. The system will then be ready for use.

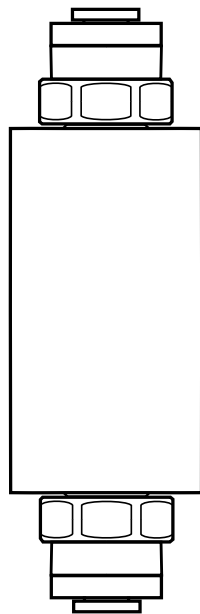
Note: The *VistaClean* may loosen a significant amount of particulate from the preexisting waterlines. Where possible, remove dental appliances from the ends of lines while flushing the system to prevent clogging of the appliance.

FINALLY: Review all important details and procedures with staff members who will be operating and maintaining the system. Make certain the Warranty Registration is completed and returned immediately after installation. Also recommend that the water and air inlet valves to the system are always turned to the “off” position at the end of each day and when not in use.

Backflow Prevention Double Check Valves

Each new Model 1000 *VistaClear* built after September 1, 2004, will include three (3) *VistaCheck* Backflow Prevention Double Check Valves. They are to be used on the Water Inlet and Air Inlet lines on the lower Control Manifold and on each treated water Outlet line on the upper Distribution Manifold as shown on the diagrams in this manual. They replace the standard check valves that were provided prior to September 1, 2004.

Make certain that each check valve is oriented in the correct flow direction!!! Also make certain that all tubing used is free of rough edges and that each tube is fully inserted into the check valve. The full plunge into the fitting is 11/16”.



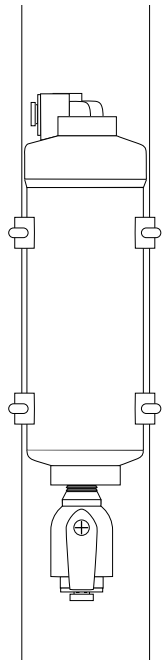
MISCELLANEOUS INSTALLATION TIPS:

Mounting Mixing Chamber:

The mixing chamber is usually left attached to the system but can be detached and installed on the wall, cabinet or dental post (as in the case of over-the-patient dental units). Simply detach the mixing chamber portion of the system from the 2.0” x 2.5” double clips and mounted remotely using either 2” wall clips or 2” x 2” post clips. The only requirement is that it **always be mounted vertically!** This is important since air will be introduced into the chamber during certain modes. If not mounted vertically, the proper amount of water discharged from the chamber will be reduced.

To mount it on a wall or flat surface, use two 2.0” wall clips. To mount it on a dental post, use two 2.0” x 2.0” double clips as shown here.

Optional mounting clips and other accessories and spare parts are included in the S6901 Installers Kit.



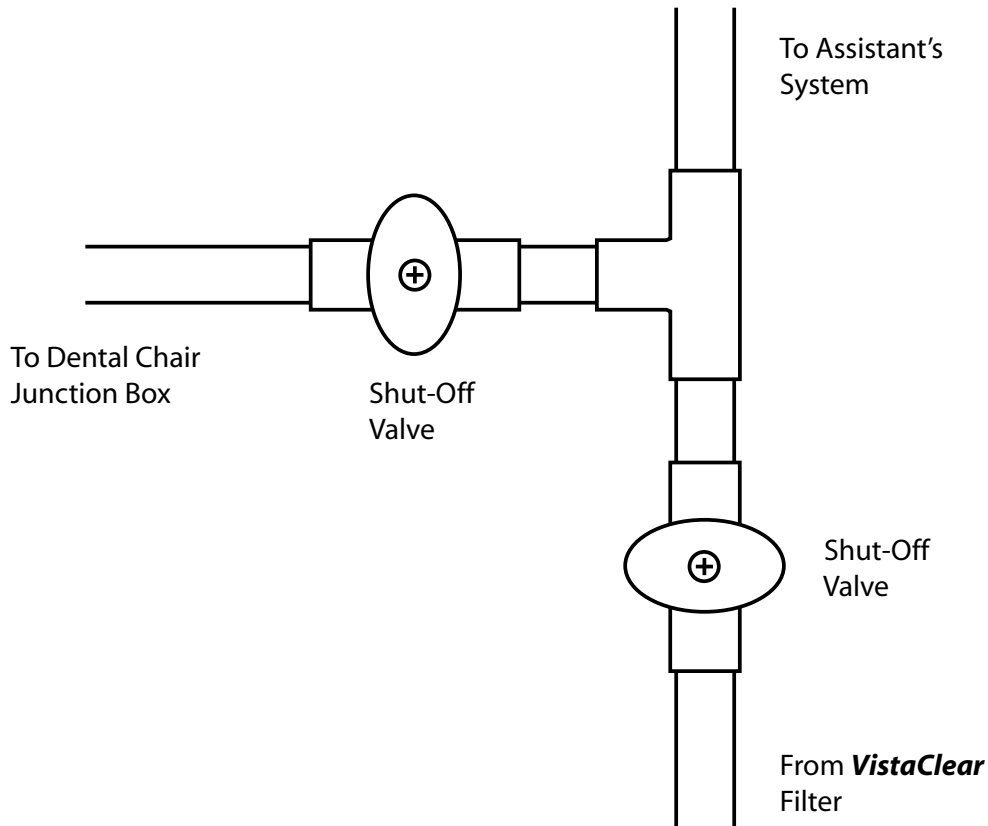


Typical Multiple Outlet Connection Schematic

In a number of circumstances, an operatory will have two separate dental units in remote locations. For example, a dental assistant's system may be located at side or rear-delivery positions while the doctor may have an "over-the-patient" system.

The best way to service both dental systems with one *VistaClear* treatment system (central or remote) is to utilize multiple shut-off valves configured as shown below. Usually the main valve after the filter system would be located in the cabinetry at the rear or side delivery position with the secondary feeder line running to the dental chair under the floor, in a trench, umbilical or conduit system. An additional valve will also be needed in the junction box at the chair.

Both dental systems will be able to be purged with air and flushed with proper cleaning agents if this design is utilized. If, for some reason, the main (assistant's) dental unit will be in constant use but the secondary (chair) line out of service or disconnected for long periods, the line should be cleared of all water and the valve serving the chair in the cabinetry shut off. If water lays unused in such a "dead leg," it could possibly encourage the growth of organisms.





Owner's Manual & Maintenance Guide

As with any piece of equipment, proper installation and maintenance of your *VistaClear* Dental Waterline Treatment System is critical. After installation, the dental waterlines will need to be cleaned to remove any contamination. Most likely, the installer will help you perform the initial line cleaning.

In order to prepare your dental system for use, follow the procedures shown on the pages that follow and use the formulae shown on this page. Although other cleaning agents can be used in conjunction with the *VistaClear* system, we have provided complimentary samples of our *VistaClear* Irrigant Solution Concentrate for your use. You will use this product during the simple maintenance program.

LINE CLEANSING PROCEDURE: This should be done immediately after installation and at least once per quarter under normal conditions. *Note: Always remove hand-pieces, A/W syringe tips and scalers before cleaning lines. Also remember to purge any quick disconnect ports and cup fillers if present.*

**** FOR LINE CLEANSING ****

VistaClean

- Place 10 – 20 ml of warm water in a small cup
- Add **12 drops** of *VistaClean* and stir gently
- Draw all solution into plastic syringe
- Inject into injection port then follow steps on page 13

Allow the solution to remain in the lines for at least 60 minutes (best overnight or weekend). *Note: The agent may foam which is normal.*

LINE RINSING PROCEDURE: This should always be performed after a “cleaning” in order to remove debris and residuals from all lines. Follow the directions on page 13.

**** FOR 15 SECOND PROTOCOL ****

VistaClean

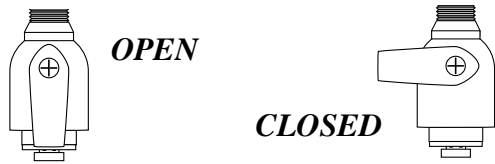
- Place 10 – 20 ml of warm water in a small cup
- Add **1 drop** of *VistaClean* and stir gently
- Draw all solution into plastic syringe
- Inject into injection port then follow steps on page 13

Diminishing Residual: *Note: Maintaining a slight residual of *VistaClean* in the waterlines helps keep them clean and may be a desirable method in lieu of monthly purging. *VistaClean* is safe to use during patient care and does not negatively affect bond strength. The protocol only takes about 15 seconds to administer AFTER the cleaner is dissolved in water according to the formula. The 15 Second Protocol creates a residual in the water without having to perform a system purge and rinse. The modest residual concentration in the waterline will, of course, diminish throughout the course of the day/week by dilution. Many offices now do the 15 Second Protocol each week and a full system purge and rinse each quarter saving time and providing great results.*

System Maintenance Summary	
DAILY	NONE - Simply discharge each dental appliance for 20-30 seconds every morning and between patients as directed in CDC's 2003 "Guidelines for Infection Control in Dental Health-Care Settings" manual.
WEEKLY	15 SECOND PROTOCOL - Add a small amount of <i>VistaClean</i> residual by following the "Creating Residual" instructions on page 13.
MONTHLY	NONE
QUARTERLY	PURGE and CLEAN - Follow the "Line Cleaning" and "Line Rinsing" directions on page 13.
ANNUALLY	<ul style="list-style-type: none"> • Change the water filter elements (Part # R5450 from your dealer) • Test the <i>VistaCheck</i> dual check valves • PURGE and CLEAN - Follow the "Line Cleaning" and "Line Rinsing" directions on page 13.

LINE CLEANSING / RINSING / CREATING RESIDUALS

VALVE OPERATION: Valves with handles in these positions are



A. LINE CLEANSING PROCEDURE

(*Purging System and Lines*)

- Step 1: Close water inlet valve (3)
- Step 2: Slowly open drain valve (4)
- Step 3: Open air valve (1)
- Step 4: Close drain valve (4) when water stops running to drain
- Step 5: Discharge all dental appliance lines (5) in each operatory into sink, cup or bucket until all water is evacuated and air emerges
- Step 6: Close air valve (1)
- Step 7: Open drain valve (4) to relieve all pressure from system
- Step 8: Close drain valve (4)

(*Adding Line Cleaner*)

Note: The following will create about 8 ounces of cleaning solution. This is usually enough for treating all lines in the operatory.

NEVER attempt to inject cleaner if there is pressure on the system!

- Step 1: Inject all cleaner concentrate mixture (using formula from page 11) into injection port (2) using syringe provided
- Step 2: Open water inlet valve (3) to further dilute cleaner and fill mixing chamber with cleaning solution
- Step 3: Close water inlet valve (3) when the two gauges read the same pressure and mixing chamber is full
- Step 4: Open air inlet valve (1)
- Step 5: Discharge all dental appliance lines (5) in each operatory into sink, cup or bucket until all air is evacuated and cleaning solution emerges
- Step 6: Close air valve (1)
- Step 7: Open drain valve (4) to relieve all pressure from system then close drain valve (4)

Allow solution to remain in water lines for the proper length of time

B. LINE RINSING PROCEDURE

- Step 1: Slowly open air valve (1)
- Step 2: Slowly open drain valve (4) to remove remaining cleaner from mixing chamber
- Step 3: Close drain valve (4) when air emerges from (4)
- Step 4: Discharge all dental appliance lines (5) in each operatory into sink, cup or bucket until all cleaner is evacuated and air emerges
- Step 5: Close air valve (1)
- Step 6: Open drain valve (4) to relieve all pressure from system
- Step 7: Close drain valve (4)
- Step 8: Open water inlet valve (3) to fill mixing chamber
- Step 9: Discharge all dental appliance lines (5) in each operatory into sink or cup until all air is evacuated and clear water emerges. Rinse each line for 10 seconds.

The system is now ready for use!

C. 15 SECOND PROTOCOL

*Note: Maintaining a slight residual of **VistaClean** in the waterlines helps keep them clean and may be a desirable method in lieu of monthly purging. **VistaClean** is a safe irritant to use during patient care and does not negatively affect bond strength. The protocol only takes about 15 seconds to administer **AFTER** the cleaner is dissolved in water according to the formula.*

- Step 1: Add **VistaClean** cleaner to small cup using formula from page 11
- Step 2: Close water inlet valve (3)
- Step 3: Slowly open drain valve (4) to completely relieve pressure from system... then open the air for a few seconds... then close the drain valve (4)
- Step 4: Inject all **VistaClean** cleaner concentrate mixture into injection port (2) using the syringe provided
- Step 5: Open water inlet valve (3)

The system is now ready for use!

*** VALVE POSITIONS FOR NORMAL USE ***

- 1 – Air Inlet Valve – CLOSED 3 – Water Inlet Valve - OPEN
4 – Drain Valve - CLOSED

BYPASSING THE SYSTEM

Turn off water supply valve and disconnect the water inlet feed line from valve #3 and attach it to the inlet of the **VistaCheck** check valve. Be certain to close both the **VistaClear** air and water inlet valve then turn on the water supply valve.



Injection Port Assembly Cap

Each *VistaClear* Dental Waterline Treatment System comes standard with a safety cap on the injection port assembly tube. The injection port assembly valve contains a spring-loaded check valve that keeps pressurized water from escaping the system. As an added safety, a cap is now pushed onto the end of the injection tube to prevent leaking in the event the spring in the check valve might fail years down the line.

The cap is designed like all of the other fittings on the *VistaClear* in that they contain a no-tools-required stainless steel gripper and O-ring. Once pushed onto the tube it cannot be removed unless the collet is held back against the cap body. This is done by using your fingernails or a retraction tool and pulling the cap away from the poly tube as shown below. It is quite easy to do and can be done over and over again.

You'll need to remove the cap to make your monthly injection of cleaner then replace it when done as shown below.

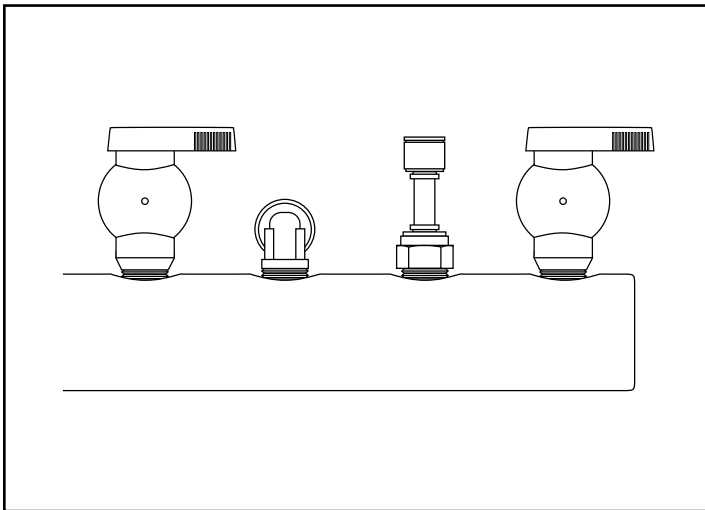


Fig 1. Cap in normal position.

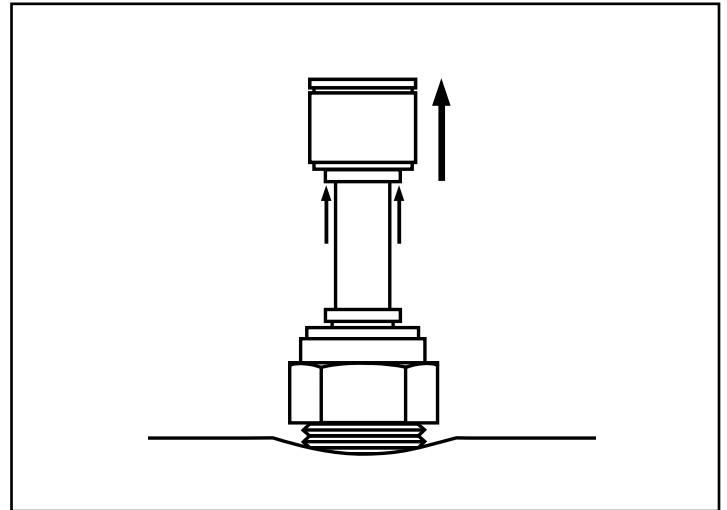


Fig 2. To remove cap, hold collet back against cap body and pull cap away from tube.

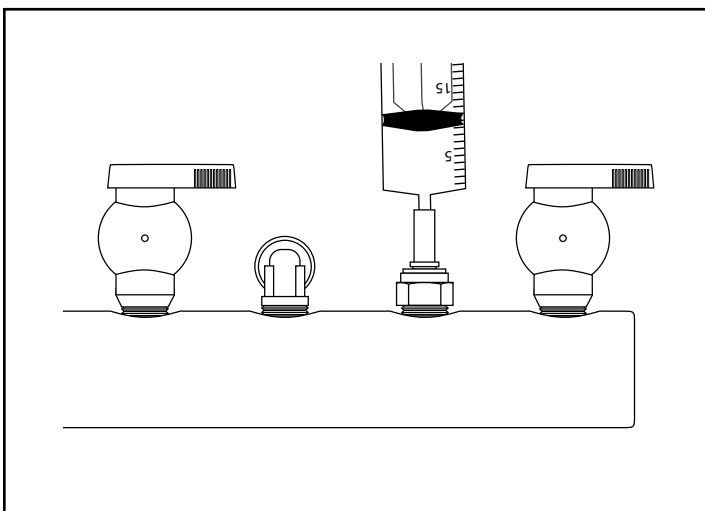


Fig 3. Inject cleaner using provided luer tip syringe.

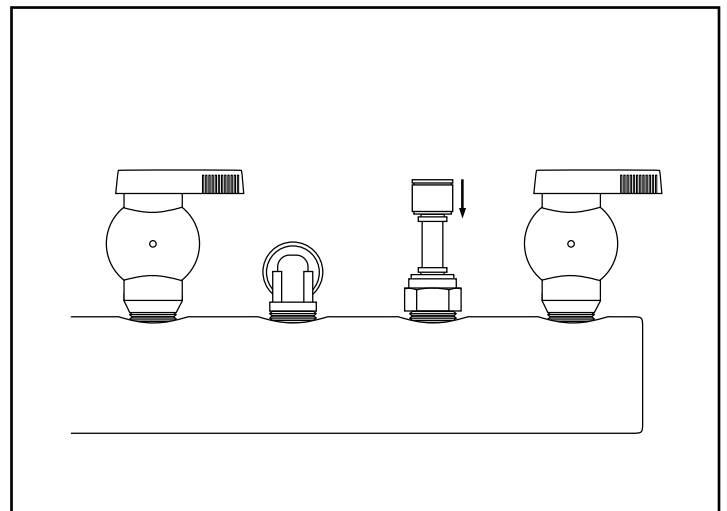


Fig 4. Push cap firmly onto tubing when finished.



Backflow Prevention

Annual Backflow Preventer Valve Testing

All *VistaCheck* backflow preventer valves downstream of the Distribution Manifold on the system should be checked **at least once per year** to make certain they are working properly. Follow these steps to perform this simple but important testing procedure. This testing procedure will not expose the system to outside contamination.

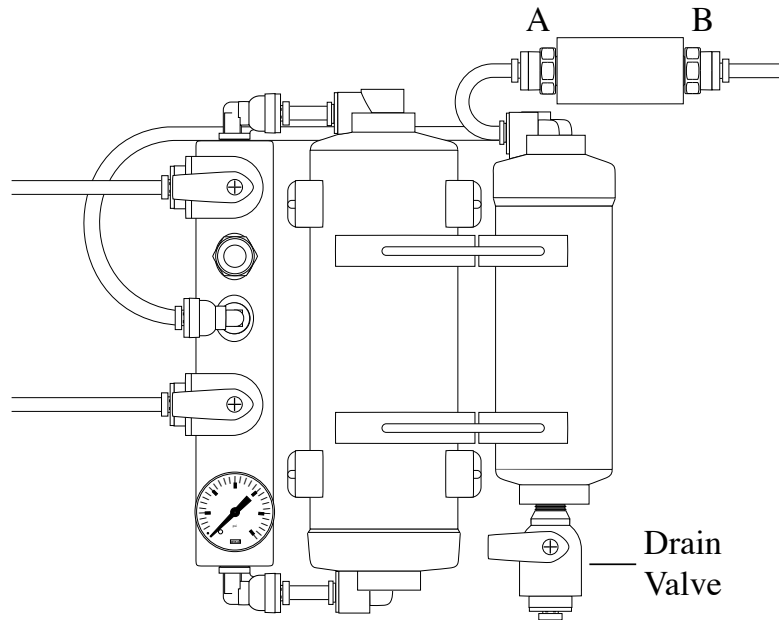
1. Start with the system in the normal service position. This means that the water inlet valve on the lower manifold is **open**, the air inlet valve is **closed**, the drain valve is **closed** and all valves leading to operatories are **open**. The pressure gauges should be registering readings approximately 40 psi in the service position if regulators are in place. If regulators are not being used, the pressure readings will be higher. In the service position with all operatory valve **open**, there will be pressure throughout the entire system.
2. **Close** the water inlet valve on the lower Control Manifold and **open** the drain valve on the Mixing Chamber to relieve all system pressure and allow water from the Chamber to run to drain.
3. Examine the *VistaCheck* backflow preventer valves above the upper Distribution Manifold. They are designed with collets on each end that move away from the fitting body when the fitting is under pressure. When there is no pressure in the fitting, the collets can be easily pushed against the fitting body. Please see the diagrams on the opposite page that shows the location of the *VistaCheck* backflow preventer valves relative to the Distribution Manifold and the position of collets under *various* pressure conditions.
4. With the drain valve still in the open position and using fingertips, attempt to push the collet on the outlet side of the *VistaCheck* (position B) back against the fitting body.
 - If there is strong resistance or the collet **cannot** be moved, this indicates that the check valve is working properly since pressure from the line running to the operatory is still present.
 - If the collet **can** be pushed back against the fitting body at position B, that check valve is not working properly and should be replaced immediately. Repeat this test procedure on each *VistaCheck* to ensure pressure is being held in each operatory distribution line.
5. To return to normal operating position, **close** the drain valve on the Mixing Chamber and **open** the water inlet valve on the lower Control Manifold. Pressure should register on both gauges and the system is ready for use.

NOTE: If the R5450 filters were changed during the same time period as the backflow test or if any of the *VistaCheck* backflow preventer valves were removed or replaced, be certain to perform a full system cleaning since the lines and components will have been exposed to possible bacterial contamination.

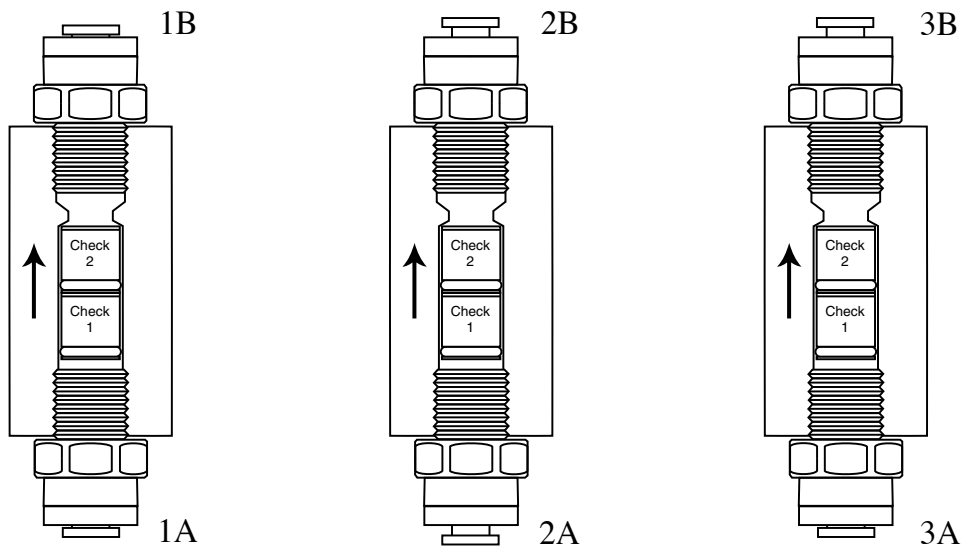


Backflow Prevention

Typical System Layout



VistaCheck Backflow Preventer Collet Positions



NO Pressure on Either End
*Collets can be easily pushed
against fitting body.*

FULL Pressure on Both Ends
*Collets can Not be easily pushed
against fitting body.*

Pressure on 3B / None on 3A
*Separation of collet and fitting at 3B
means check valve is working.*

Vista Research Group, LLC
***VistaClear* “LIMITED” WARRANTY**

During the time period and subject to the conditions hereinafter set forth, Vista Research Group, LLC (VRG) will repair or replace to the original user any portion of a VRG product which proves defective due to defective materials or workmanship of VRG. Contact your nearest authorized VRG distributor/dealer for warranty service. At all times VRG shall have and possess the sole right and option to determine whether to repair or replace defective equipment, parts, or components. Damage due to conditions beyond the control of VRG is **NOT COVERED BY THIS WARRANTY**. (Contact parcel or freight company for claims on freight damaged in transit)

WARRANTY PERIOD: VRG shall warrant its dental waterline treatment systems and other systems for a period of two (2) years from the date of installation, or thirty (30) months from the date of manufacture, whichever ever comes first. Treatment filtration elements subject to varying types of water conditions are not warranted for performance due to fouling by local water conditions but are warranted for defects in materials and workmanship.

LABOR, ETC., COSTS: VRG shall **IN NO EVENT** be responsible or liable for the cost of field labor or other charges incurred by any customer in removing and/or re-affixing any VRG product, part or component thereof.

THIS WARRANTY WILL NOT APPLY: (a) To defects or malfunctions resulting from failure to properly install, operate or maintain the unit in accordance with printed instructions provided; (b) to failures resulting from abuse, accident or negligence; (c) to normal maintenance services and the parts used in connection with such service; (d) to units which are not installed in accordance with applicable local codes, ordinances and good trade practices; (e) if the unit is moved from its original installation location, or; (f) if the unit is used for purposes other than for what it was designed and manufactured.

RETURN OF REPLACED COMPONENTS: Any item to be replaced under this Warranty must be returned to Vista Research Group, LLC (VRG) in Ashland, Ohio, or such other place as VRG may designate, freight prepaid. Write to the address listed below for a return authorization and the physical address to which items should be returned for warranty attention.

PRODUCT IMPROVEMENTS: VRG reserves the right to change or improve its products or any portions thereof without being obliged to provide such change or improvement of units sold and/or shipped prior to such change or improvement.

WARRANTY EXCLUSIONS: As to any specific VRG product, after the expiration of the time period of the warranty applicable thereto as set forth under the heading “Warranty Period” above, **THERE WILL BE NO WARRANTIES, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.**

Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. No warranties or representations at any time made by any representative of VRG shall vary or expand the provisions hereof.

LIABILITY LIMITATION: IN NO EVENT SHALL VRG BE LIABLE OR RESPONSIBLE FOR CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES RESULTING FROM OR RELATED IN ANY MANNER TO ANY VRG PRODUCT OR PARTS THEREOF.

Some states do not allow the exclusion of limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This Warranty gives you specific legal rights and you may also have other rights which vary from state to state.

For your warranty protection (Magnason-Moss Warranty Act), the warranty card, if provided, should be completed and returned to VRG within ten (10) days of installation. In the absence of other suitable proof of installation date, the effective date of this warranty will be based upon the date of manufacture plus one hundred eighty (180) days.

Direct all notices, etc. to:

Service Department
Vista Research Group, LLC
P.O. Box 321
Ashland, Ohio 44805-0321

Date: September 2000

Thank you for choosing the *VistaClear™* Dental Waterline Treatment System for use in your practice! In order for you to have necessary information for future maintenance, filter element replacements, etc., we are providing the following chart for your use. Please fill it out completely and keep this manual in a convenient place for ready access and reference.

System Name	<i>VistaClear</i>				Filter Element Replacement Record	
System Model #	1000					
System Serial #					<i>Date</i>	<i>Serial #</i>
Filter Element Serial #						
Purchased From (Distributor)						
Distributor's Address (Line #1)						
Distributor's Address (Line #2)						
Distributor's City / State / Zip						
Distributor's Telephone #						
Installed By						
Installer's Telephone #						
Date Installed						
Notes:						

We strongly suggest that you mark your calendar eleven months ahead so that you don't forget to order your replacement filter elements (order # R5450). Also mark the anniversary date of the installation on your calendar as an added reminder. ***It's important to replace the filter elements AND test your VistaCheck Backflow Preventers every 12 months*** and perform a complete system cleaning in order to assure the best quality water for your practice. Ask your distributor to put you on an automatic reminder and/or shipment program.

**Make certain to complete and return
the yellow "Warranty Registration" form immediately!**

Make a copy of the form for your records then mail it back to us. Also request your complimentary DUWL Water Treatment Registry Certificate for mounting in your operatory as well as an initial supply of Patient Information Pamphlets.

Once again, thank you for selecting the patented *VistaClear* Dental Waterline Treatment System for your practice!

Vista Research Group, LLC

P.O. Box 321 • Ashland • Ohio • 44805-0321

419.281.3927 PH *VistaResearchGroup.com* *info@vistaresearchgroup.com* 419.281.7380 FX