

ChlorKing® Sentry UV

SENTRY AQUA GUARD LOW PRESSURE UV LIGHT SYSTEM

Installation, Operation, and Maintenance Manual

FOR ALL SAG MODELS CERTIFIED FOR SECONDARY DISINFECTION



TABLE OF CONTENTS

1.0 DESCRIPTION	3
1.1 General Information	3
1.2 Principals of Operation	4
1.3 Specifications, Certifications, and Sizing Guidelines	4
2.0 INSTALLATION	19
2.1 Unpacking	19
2.2 Storage	19
2.3 Safety Considerations	19
2.4 Plan Ahead	22
2.5 Power Supply Installation	22
2.6 UV Chamber Installation	22
2.7 Quartz Sleeve Installation	23
2.8 Lamp Installation	24
2.9 Plumbing the UV Chamber	24
2.10 Plumbing the Strainer	26
2.11 Flow Switch Installation	26
2.12 Optional Flow Meter Installation	27
2.13 Plumbing the Air Bleed for Vertical Mount Chambers	27
2.14 System Wiring	28
2.15 Safety Cover Wiring	28
2.16 UV Sensor Installation	28
2.17 Bonding the System	28
2.18 UV Display Settings for GF Signet Flow Sensors	29
2.19 UV Display Settings for Systems with Flow Switches	30
3.0 OPERATION	32
3.1 Start-up Procedures	32
3.2 UV Display Operation	32
4.0 MAINTENANCE	35
4.1 Routine Maintenance	35
4.2 Recommended Broken Lamp Handling Practices	38
5.0 WARRANTY INFORMATION	38
5.1 How to Obtain Help	38
5.2 Returning a ChlorKing® - Sentry UV Product	38
5.3 Activating/Validating Warranty and Making a Warranty Claim	39
5.4 Warranties for Housing, Parts, Lamps, and Ballasts	39
5.5 Warranty for Quartz Sleeves	40
5.6 General Conditions and Limitations	40

Note: This manual is subject to change at any time based on system improvements, design changes, authorized modifications, or new information. Please consult ChlorKing-Sentry UV for the latest revision.

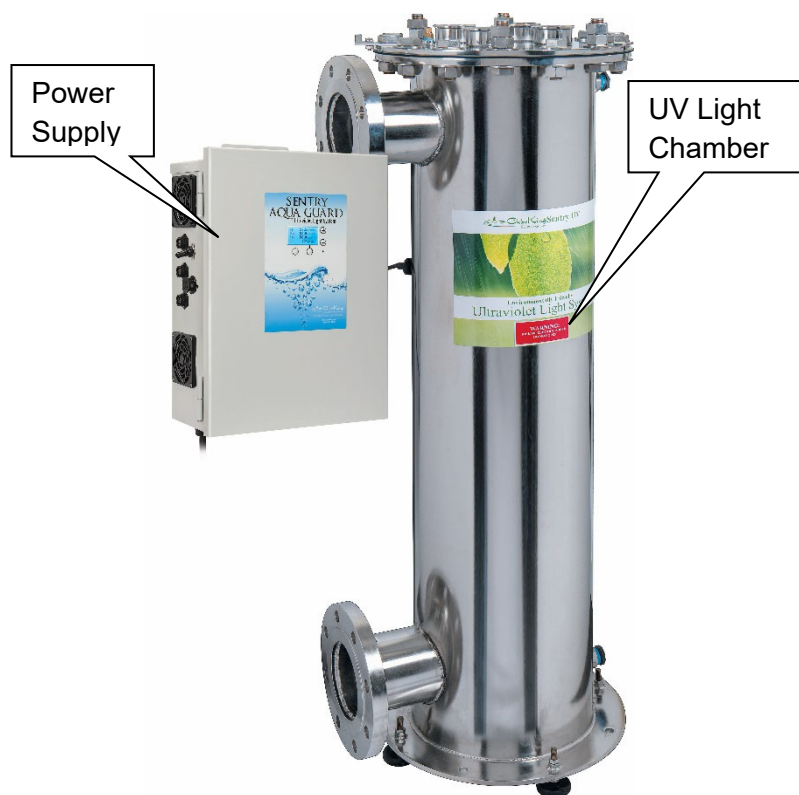
SECTION 1

DESCRIPTION

1.1 GENERAL INFORMATION

The Sentry Aqua Guard system is a low pressure, high output, amalgam, ultraviolet light sterilizer designed for secondary disinfection of commercial swimming pools. The Sentry Aqua Guard is capable of sterilizing and oxidizing up to 1141 gallons per minute of water. The system operates at light wavelengths of 254nm for sterilizing and 185nm for oxidizing. The Sentry Aqua Guard is designed for commercial service and can be run 24 hours a day. The Sentry Aqua Guard components are outlined in **Figure 1**:

Figure 1



1.2 PRINCIPALS OF OPERATION

UV Light Chamber (See Figure 1)

The UV Light Chamber is made from highly polished 316L stainless steel or 316L stainless steel lined PVC. Quartz sleeves separate the low pressure, high output amalgam germicidal lamps from the water. The water to be treated flows into the bottom of the chamber. Once in the chamber, the germicidal bulbs produce a minimum 3-log reduction in pathogens. The water is then returned to the source.

Power Supply (See Figure 1)

The power supply provides the current to start and maintain the germicidal lamps. A constantly visual readout of system output is displayed on the face of the power supply. The information includes actual flow in gpm, actual calculated dose in mj/cm^2 , and actual lamp intensity in w/cm^2 or W/M^2 .

1.3 SPECIFICATIONS, CERTIFICATIONS, AND SIZING GUIDELINES

The PVC models have demonstrated an ability to provide a 3.5 log inactivation of *Cryptosporidium parvum* at the maximum flow rates shown in the table on the next page. The stainless-steel models have demonstrated an ability to provide a 3.0 log inactivation of *Cryptosporidium parvum* at the maximum flow rates shown in the table on the next page. The test organisms (MS2) were correlated to Crypto using a collimated beam analysis and biosimetry testing as outlined in the EPA UVDGM.

MODEL NUMBERS AND DESCRIPTION:

Model numbers with PVC in the part number are available in a U inlet and outlet configuration. All other models are available in U or Z inlet and outlet configuration.

SAG120A120CR – Sentry Aqua Guard 120A 120
SAG120A120PVCCR – Sentry Aqua Guard 120A 120 PVC
SAG240A120CR – Sentry Aqua Guard 240A 120
SAG240A120PVCCR – Sentry Aqua Guard 120A 120 PVC
SAG480A120CR – Sentry Aqua Guard 480A 120
SAG480A120PVCCR – Sentry Aqua Guard 480A 120 PVC
SAG720A120CR – Sentry Aqua Guard 720A 120
SAG960A120CR – Sentry Aqua Guard 960A 120
SAG1200A120CR – Sentry Aqua Guard 1200A 120

CERTIFICATIONS: The SAG CR series is certified for indoor installation.

NSF Standard 50 – Certified for Secondary Disinfection
UL Standard 1081
CSA Standard C22.2 #218.1

PERFORMANCE SPECIFICATIONS:

Model #	Rated Pressure (psi)	Max Rated Flow (gpm)	UVT (min)	Effective UV Dose (min)	Reference Intensity (mW/cm ²)	Rated Power (KW)	Number of Lamps	Volume of Chamber (Gallons)	Length and Diameter of Chamber
SAG120A120CR	50	up to 46	92.3	12	24.1	.12	1	2.16	45"L x 4.5"D
SAG120A120PVCCR	50	up to 58	91.4	15	21.4	.12	1	4.85	45.625"L x 6"D
SAG240A120CR	50	up to 119	92.3	12	28.09	.24	2	4.85	45"L x 6.625"D
SAG240A120PVCCR	50	up to 126	91.4	15	24.38	.24	2	8.6	47.375"L x 8"D
SAG480A120CR	50	up to 352	92.3	12	31.34	.48	4	13.48	49.5"L x 10.75"D
SAG480A120PVCCR	50	up to 333	91.4	15	31.34	.48	4	12.9	47.4"L x 10.75"D
SAG720A120CR	50	up to 620	92.3	12	38.83	.72	6	23.55	53.5"L x 12.75"D
SAG960A120CR	50	up to 770	92.3	12	50.44	.96	8	23.55	53.5"L x 12.75"D
SAG1200A120CR	50	up to 1141	92.3	12	44.72	1.2	10	42	53.5"L x 16"D

LAMP AND LUV DETECTOR INFORMATION:

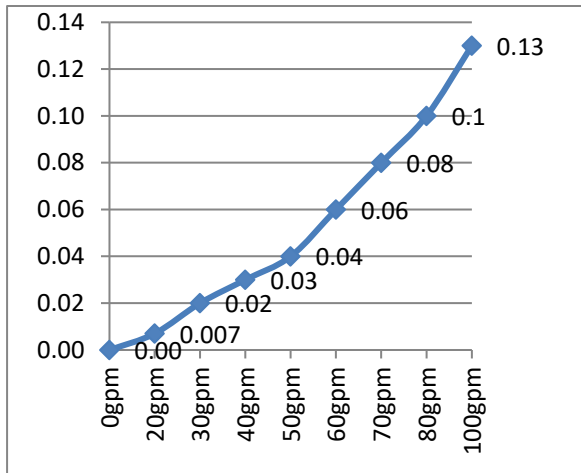
Lamp life - 13,000 hours of operation

Lamp part number – GPHA793T5VH/HW/SP

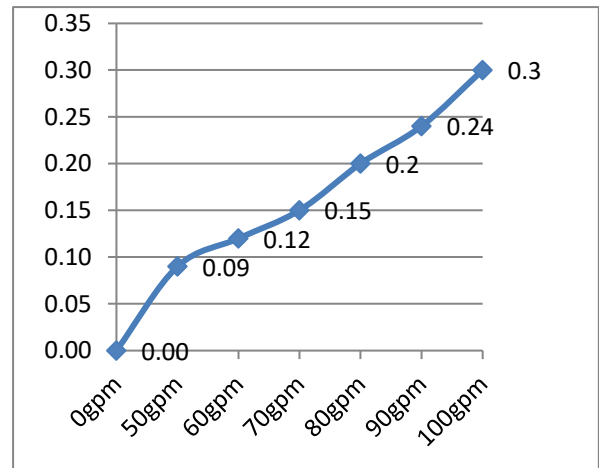
UV detector part number – S-MHL2S

HEAD LOSS DATA in ft of H2O:

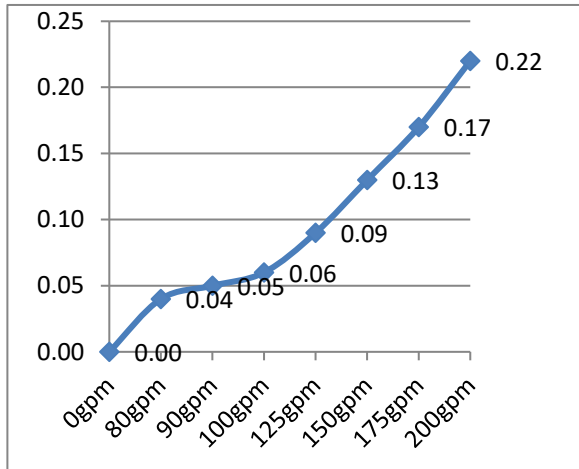
SAG120A120



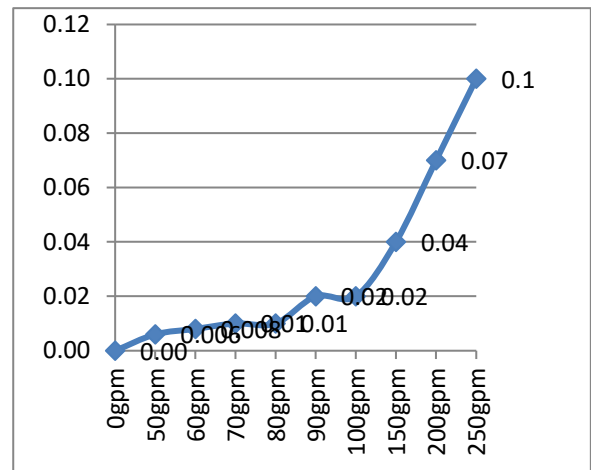
SAG120A120PVC



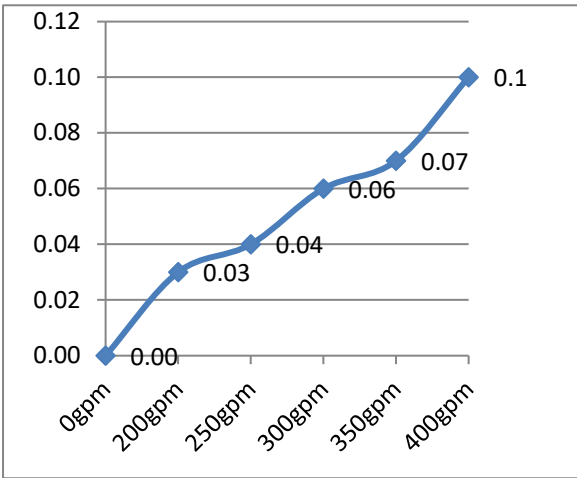
SAG240A120



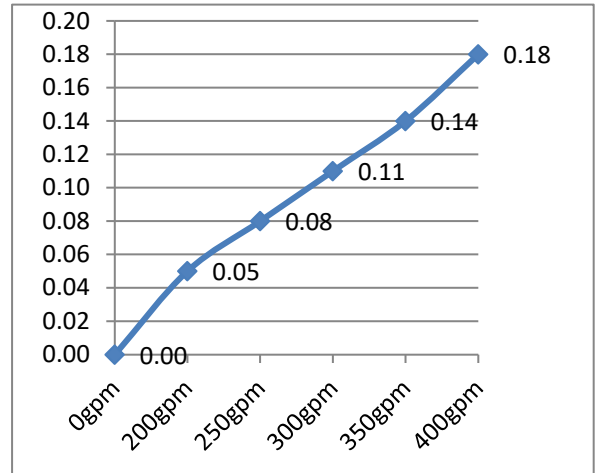
SAG240A120PVC



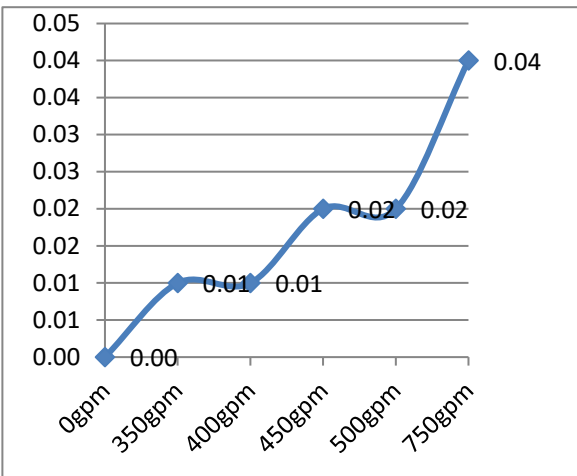
SAG480A120



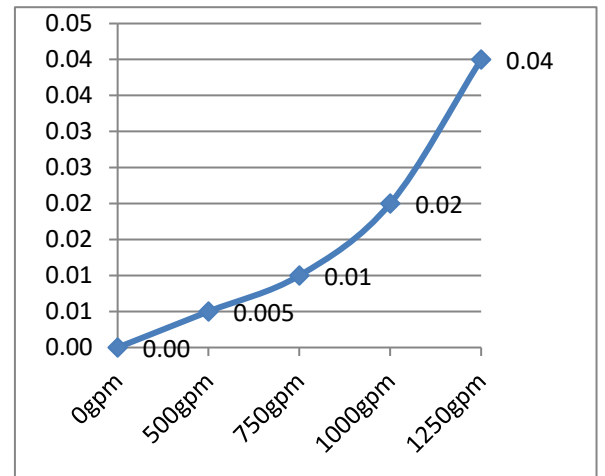
SAG480A120PVC



SAG720A120 and SAG960A120



SAG1200A120



ELECTRICAL SPECIFICATIONS:

Model #	Rated Voltage (AC)	Rated Amps
SAG120A120	120	1.5
SAG120A120PVC	120	1.5
SAG240A120	120	3
SAG240A120PVC	120	3
SAG480A120	120	6
SAG480A120PVC	120	6
SAG720A120	120	9
SAG960A120	120	10.5
SAG1200A120	120	12.5

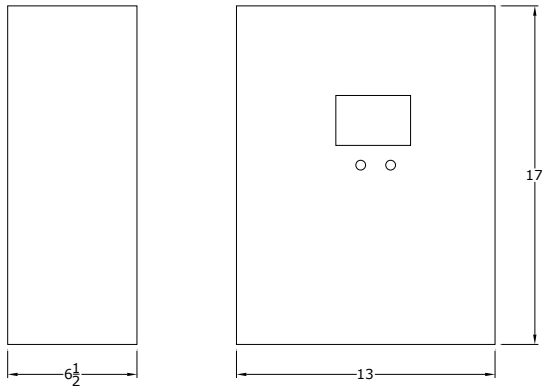
SIZING GUIDELINES

Sentry Aqua Guard UV Sterilizers will effectively treat water up to the maximum rated flow for each size unit (END of lamp life).

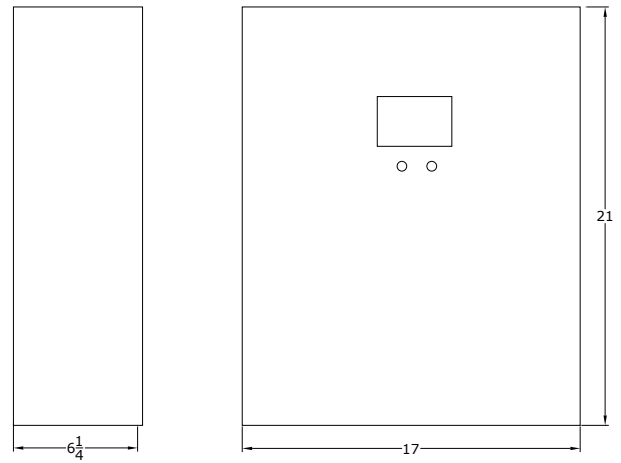
UV sizing must comply with local codes. Please contact your local health department for specific requirements or contact your local ChlorKing representative for assistance.

DIMENSIONS:

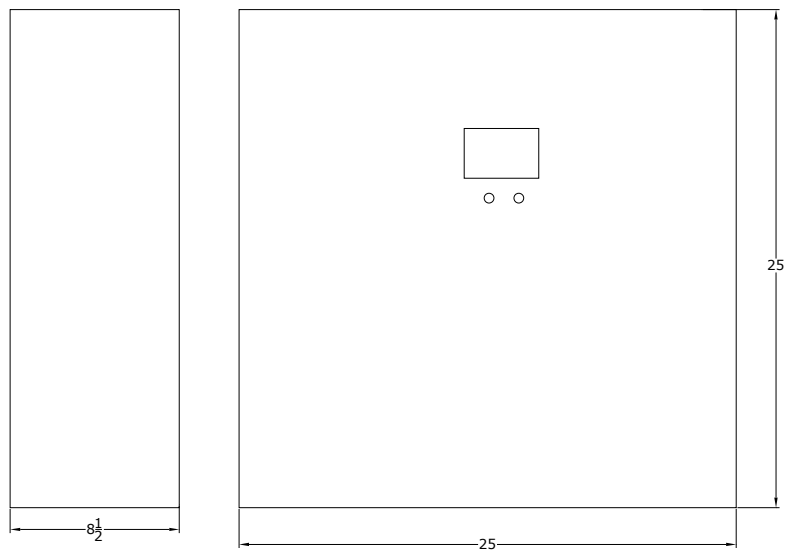
120W and 240W Power Supply



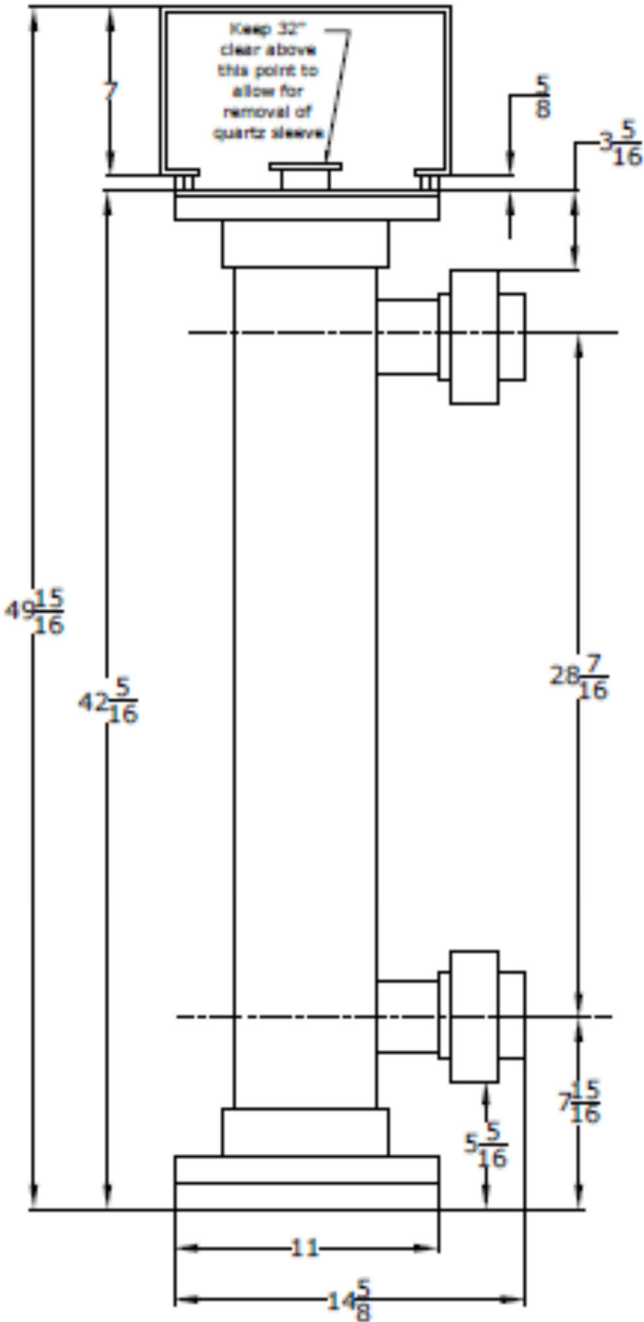
480W and 720W Power Supply



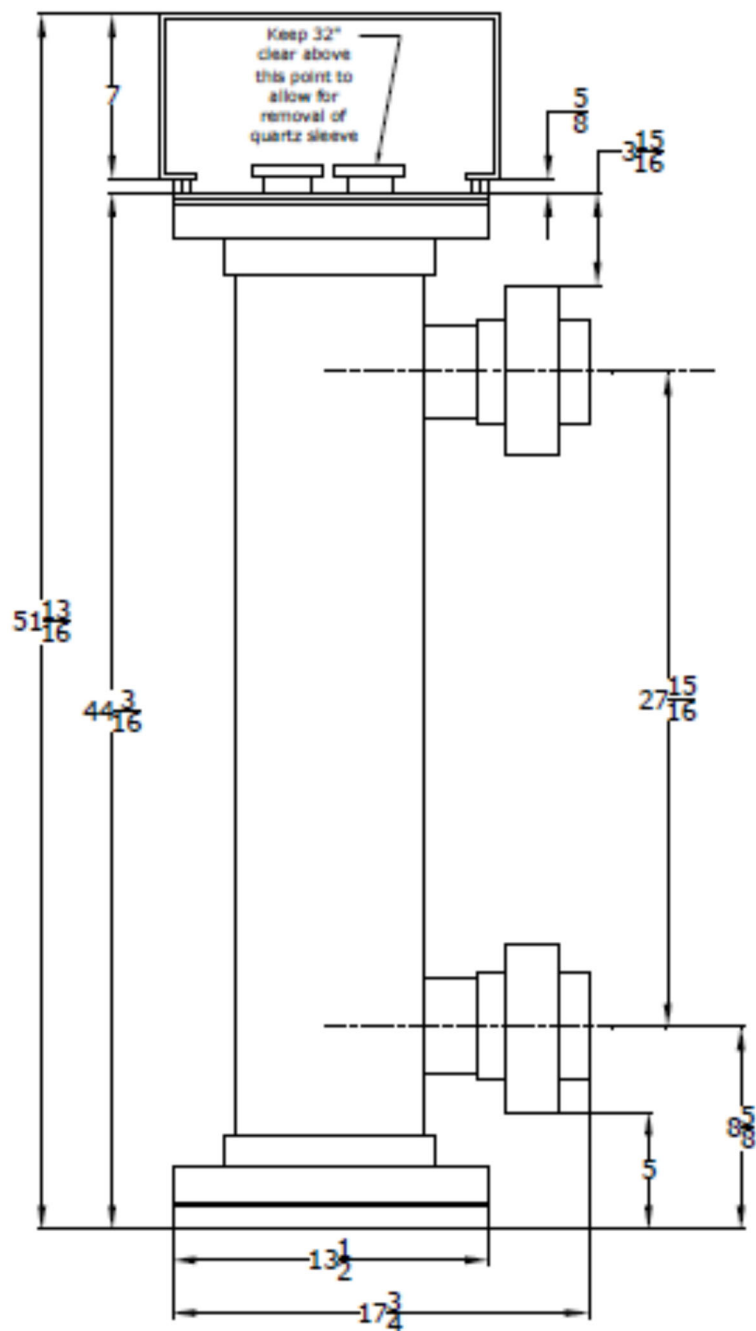
960W and 1200W Power Supply



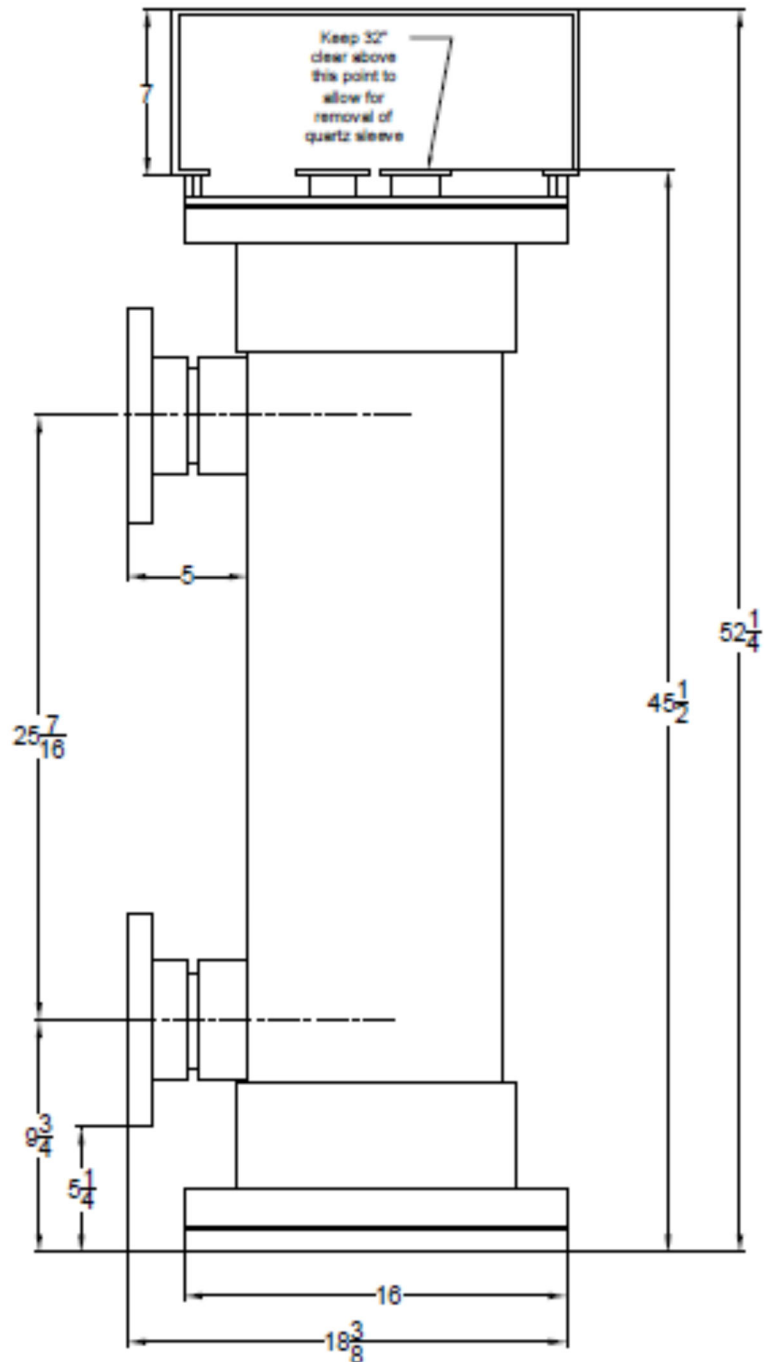
SAG 120APVC-CR



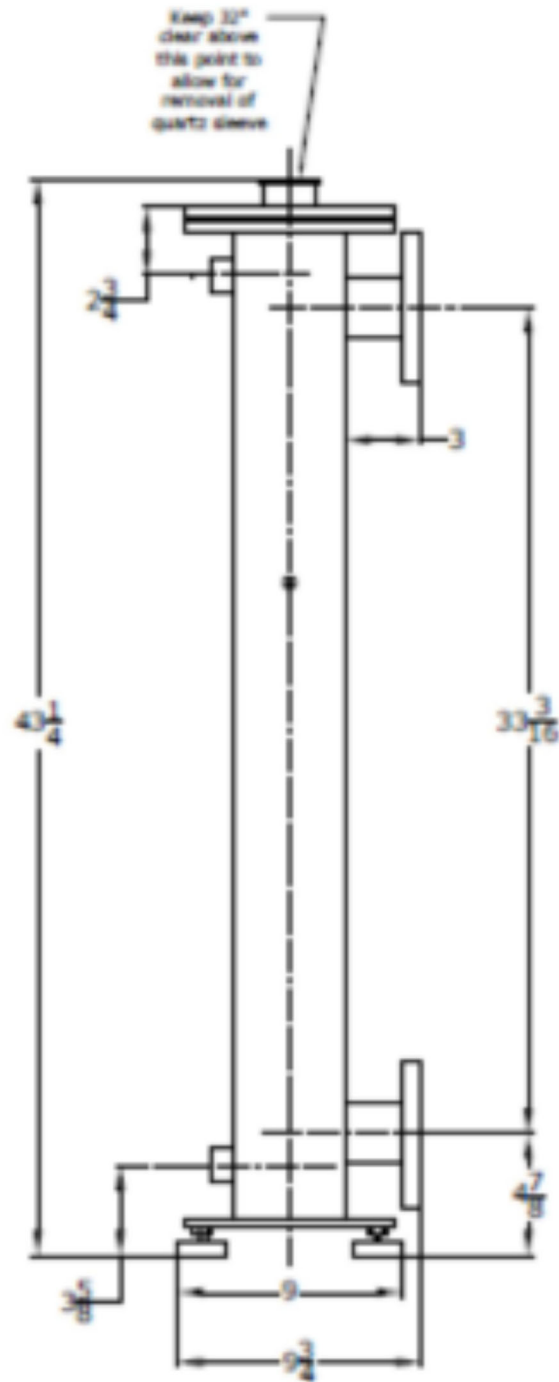
SAG 240APVC-CR



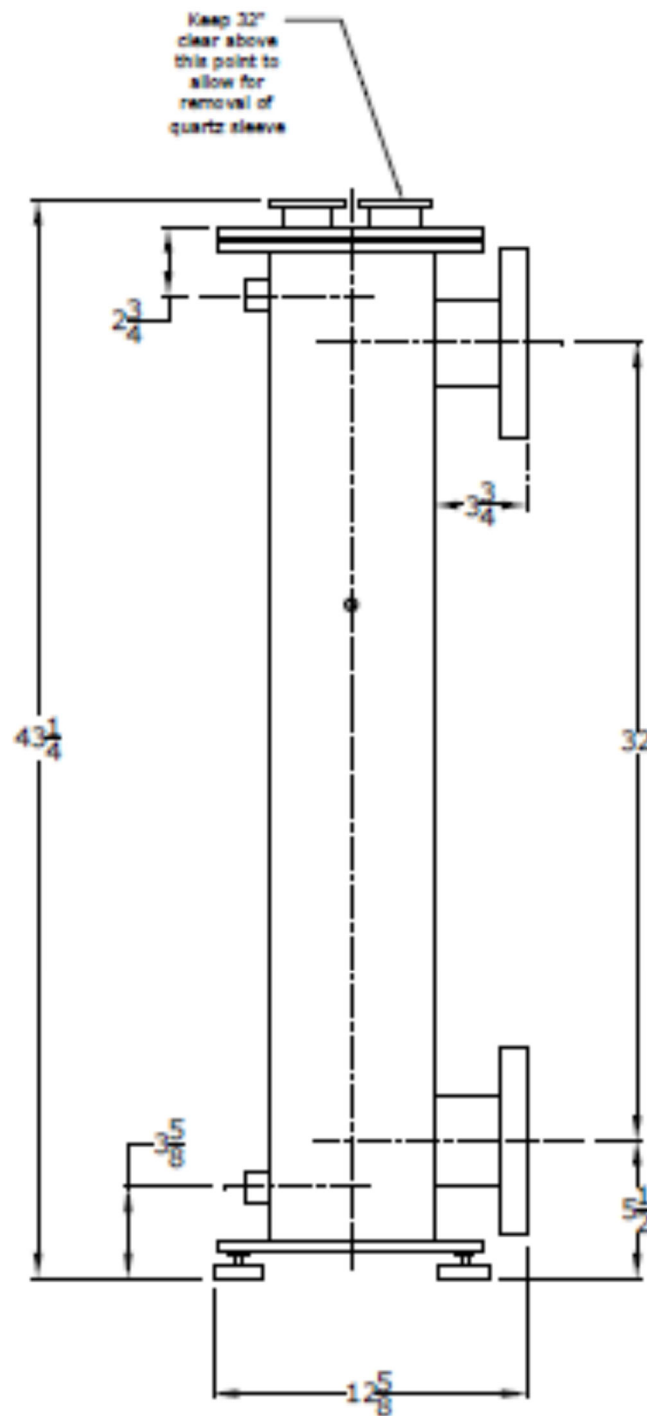
SAG 480APVC-CR



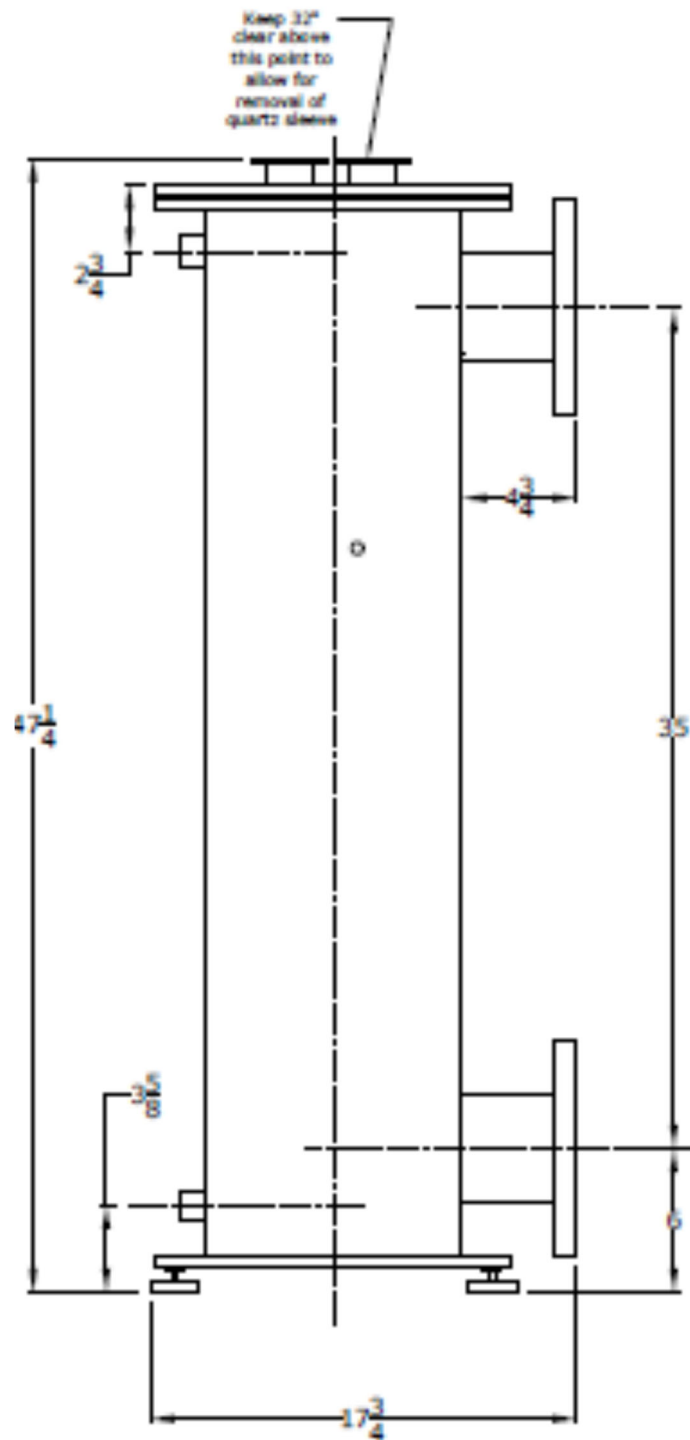
SAG 120A-CR



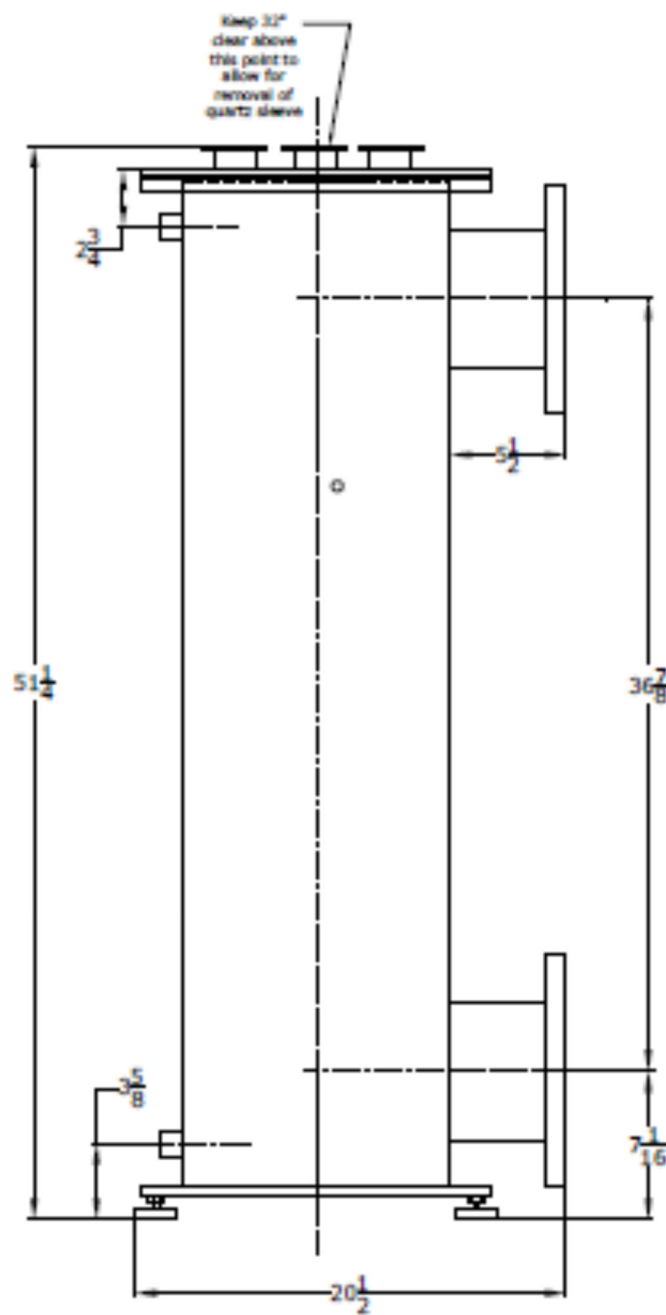
SAG 240A-CR



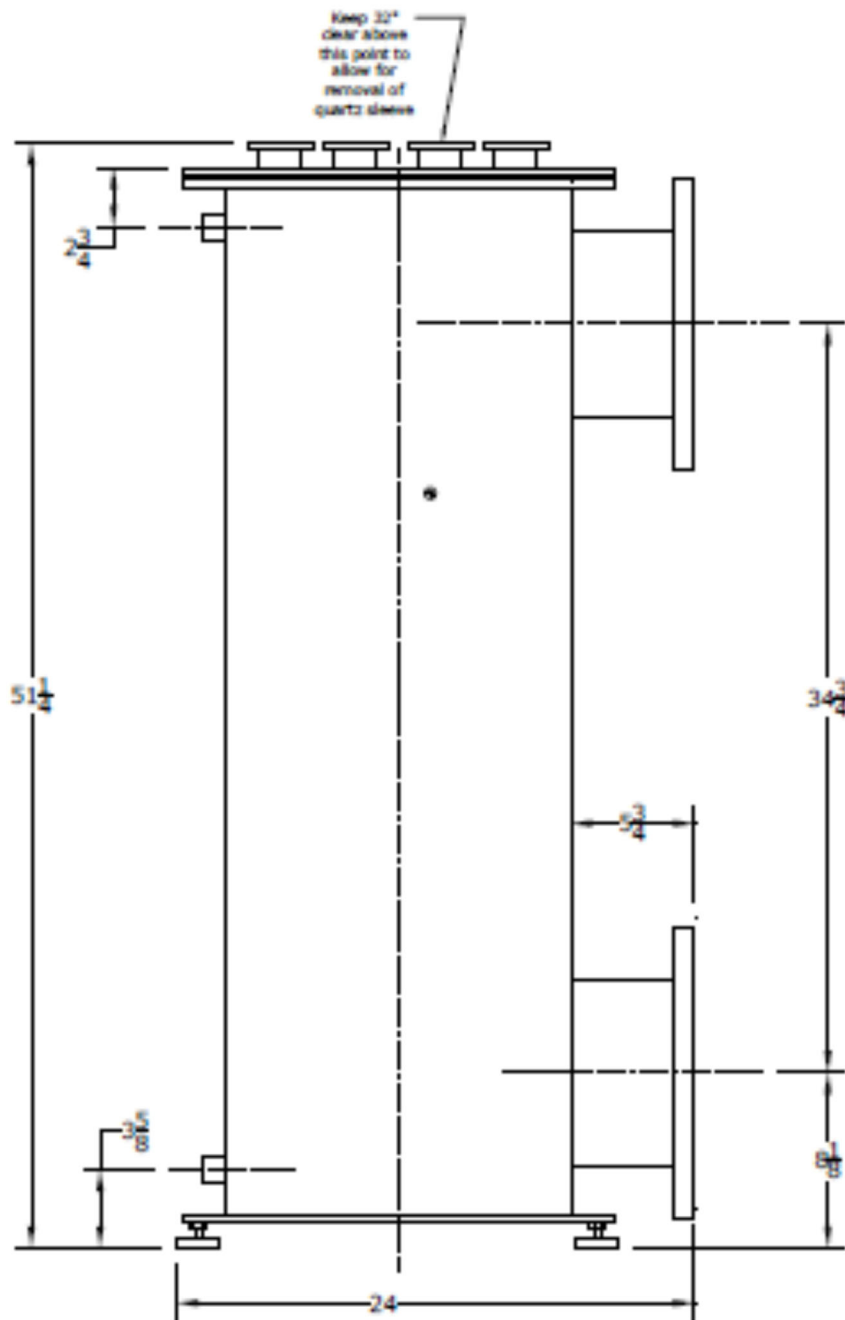
SAG 480A-CR



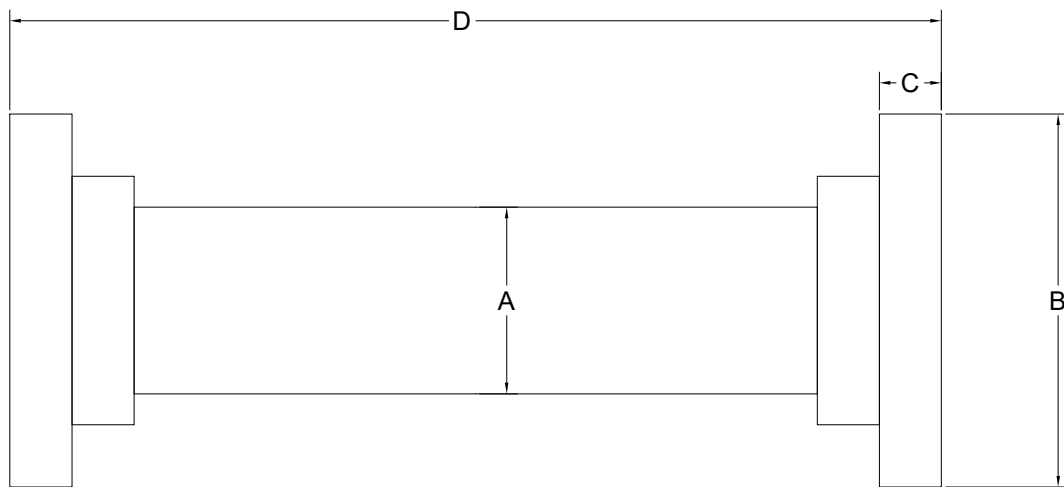
SAG 720A-CR & SAG 960A-CR



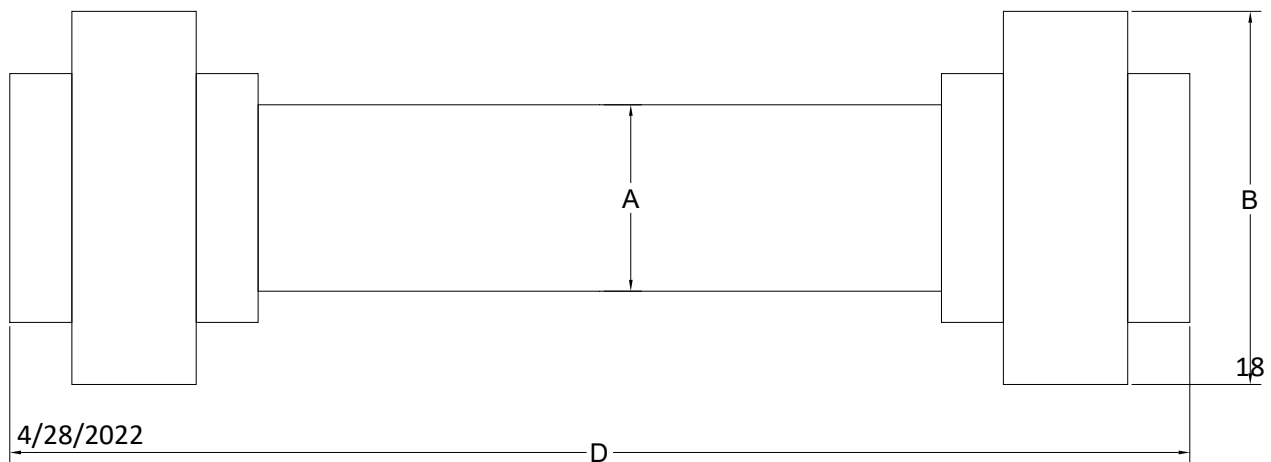
SAG 1200A-CR



Strainer Spool Dimensions (Flanged)				
Nominal Pipe Size	Pipe OD (A)	Flange OD (B)	Flange Thickness (C)	Overall length (D)
2	2 1/2	6	3/4	15 1/2
3	3 1/2	7 1/2	1	16 1/4
4	4 1/2	9	1	17 1/4
6	6 1/2	11	1 1/4	17 1/4
8	8 1/2	13 1/2	1 3/8	18 1/2
10	10 3/4	15 3/4	1 3/4	18 3/4



Strainer Spool Dimensions (Union)				
Nominal Pipe Size	Pipe OD (A)	Union OD (B)		Overall length (D)
2	2 1/2	5 1/4		20 1/2
3	3 1/2	7 1/8		21 3/4



SECTION 2

INSTALLATION

2.1 UNPACKING

Units are shipped from the factory. In the event of damages during shipping, it is the responsibility of the customer to notify the carrier immediately and to file a damage claim. Open the crate carefully and examine all material inside.

2.2 STORAGE

When storing units, use the original packaging and store under a shelter to protect the contents from weather.

2.3 SAFETY CONSIDERATIONS

IMPORTANT SAFETY INSTRUCTIONS

READ AND FOLLOW ALL INSTRUCTIONS

SAVE THESE INSTRUCTIONS

WHEN INSTALLING, OPERATING, AND MAINTAINING THIS EQUIPMENT, KEEP SAFETY CONSIDERATIONS FOREMOST. USE PROPER TOOLS, PROTECTIVE CLOTHING, AND EYE PROTECTION WHEN WORKING ON OR INSTALLING THE EQUIPMENT. FOLLOW THE INSTRUCTIONS IN THIS MANUAL AND TAKE ANY ADDITIONAL SAFETY MEASURES APPROPRIATE. BE EXTREMELY CAREFUL IN THE PRESENCE OF HAZARDOUS SUBSTANCES.

THE PERSONNEL RESPONSIBLE FOR INSTALLATION, OPERATION, AND MAINTENANCE OF THIS EQUIPMENT MUST BE FULLY FAMILIAR WITH THE CONTENTS OF THIS MANUAL.

ANY SERVICING OF THIS EQUIPMENT MUST BE DONE WITH THE UNIT FULLY OFF AND DISCONNECTED FROM THE POWER SOURCE AND ALL PRESSURE BLED FROM THE LIQUID LINES.

WARNING

- CONNECT THE EQUIPMENT ASSEMBLY TO A CIRCUIT PROTECTED BY A GROUND-FAULT CIRCUIT-INTERRUPTER.
- ONLY A CERTIFIED TECHNICIAN MAY INSTALL AND SERVICE THE **CHLORKING®** SENTRY AQUA GUARD SYSTEM.
- MODIFYING THE **CHLORKING®** SENTRY AQUA GUARD SYSTEM IN ANY WAY MAY CAUSE BODILY INJURY AND WILL VOID THE WARRANTY.
- DO NOT ALLOW CHILDREN TO OPERATE THE **CHLORKING®** SENTRY AQUA GUARD SYSTEM.
- ONLY REPLACE COMPONENTS WITH THOSE SPECIFIED BY THE MANUFACTURER.
- WHEN INSTALLING THE SYSTEM, ENSURE THAT POWER IS LINKED TO THE MAIN PUMP POWER SOURCE FOR THE POOL TO ENSURE THAT THE **CHLORKING®** SENTRY AQUA GUARD SYSTEM NEVER OPERATES WHEN THE PUMPS ARE OFF.
- ALL BOXES ON THE **CHLORKING®** SENTRY AQUA GUARD SYSTEM CONTAIN HIGH VOLTAGE COMPONENTS. NEVER OPEN ANY BOX WHILE THE POWER IS ON.
- NEVER OPEN THE **CHLORKING®** SENTRY AQUA GUARD SYSTEM OR LOOK DIRECTLY AT THE UV LAMP WHEN IT IS OPERATING. DIRECT OR INDIRECT EXPOSURE TO THE LIGHT EMITTED BY THE LAMP WILL CAUSE SERIOUS EYE DAMAGE AND SEVERELY BURN UNPROTECTED SKIN.
- REPLACE DAMAGED CORDS IMMEDIATELY.

CONSIGNES DE SÉCURITÉ IMPORTANTES

LISEZ ET SUIVEZ TOUTES LES INSTRUCTIONS CONSERVEZ CES INSTRUCTIONS

LORS DE L'INSTALLATION, DE FONCTIONNEMENT ET L'ENTRETIEN DE CET ÉQUIPEMENT, GARDEZ LES CONSIDÉRATIONS SUR LA SÉCURITÉ AVANT TOUT. UTILISER DES OUTILS APPROPRIÉS, DES VÊTEMENTS DE PROTECTION ET LUNETTES DE PROTECTION LORSQU'ILS TRAVAILLENT SUR OU À L'INSTALLATION. SUIVEZ LES INSTRUCTIONS DE CE MANUEL ET PRENDRE LES MESURES DE SÉCURITÉ SUPPLÉMENTAIRES APPROPRIÉES. SOYEZ

VIGILANTS EN PRÉSENCE DE SUBSTANCES DANGEREUSES. LE PERSONNEL CHARGÉ DE L'INSTALLATION, DE FONCTIONNEMENT ET D'ENTRETIEN DE CE MATÉRIEL DOIT ÊTRE PARFAITEMENT FAMILIARISÉ AVEC LE CONTENU DE CE MANUEL. AUCUNE OPÉRATION DE MAINTENANCE DE CET ÉQUIPEMENT DOIT ÊTRE FAITE AVEC L'UNITÉ ENTIÈREMENT ÉTEINT ET DÉBRANCHÉE DE L'ÉLECTRICITÉ ET TOUTE LA PRESSIION SAIGNÉE À PARTIR DES LIGNES DE LIQUIDES.

MISE EN GARDE

CONNECTER LE MONTAGE DE L'ÉQUIPEMENT SUR UN CIRCUIT PROTÉGÉ PAR UN DISJONCTEUR DE FUITE À LA TERRE.

- **SEUL un TECHNICIEN CERTIFIÉ PEUT INSTALLER ET ENTRETENIR LE SYSTÈME de GARDE AQUA SENTRY [CHLORKING®](#).**
- **MODIFIER LE SYSTÈME de GARDE AQUA SENTRY [CHLORKING®](#) EN QUELQUE SORTE PEUT CAUSER DES LÉSIONS CORPORELLES ET LA GARANTIE ANNULATION.**
- **NE LAISSEZ PAS les ENFANTS à EXPLOITER LE SYSTÈME de GARDE AQUA SENTRY [CHLORKING®](#).**
- **REPLACEZ UNIQUEMENT LES COMPOSANTS AVEC CELLES SPÉCIFIÉES PAR LE FABRICANT.**
- **LORSQUE VOUS INSTALLEZ LE SYSTÈME, s'ASSURER QUE la PUISSANCE EST LIÉE à LA SOURCE D'ALIMENTATION de POMPE à MAIN POUR LA PISCINE POUR VOUS ASSURER QUE LE SYSTÈME de GARDE AQUA [CHLORKING®](#) DÉTECTEUR FONCTIONNE JAMAIS QUAND LES POMPES SONT hors SERVICE.**
- **Toutes LES CASES SUR LE SYSTÈME de GARDE AQUA SENTRY [CHLORKING®](#) CONTIENNENT DES COMPOSANTS HAUTE TENSION. NE JAMAIS OUVRIR N'IMPORTE QUELLE BOÎTE TANDIS QUE L'APPAREIL EST ALLUMÉ.**
- **N'OUVREZ JAMAIS LE [CHLORKING®](#) SENTINELLE GARDE AQUA SYSTEM OU REGARDER DIRECTEMENT LA LAMPE UV LORSQU'IL FONCTIONNE. UNE EXPOSITION DIRECTE OU INDIRECTE À LA LUMIÈRE ÉMISE PAR LA LAMPE VA PROVOQUER DES LÉSIONS OCULAIRES GRAVES ET BRÛLER GRAVEMENT LA PEAU NON PROTÉGÉE.**
- **REPLACER LES CORDONS ENDOMMAGÉS IMMÉDIATEMENT.**

2.4 PLAN AHEAD

Almost every pump room encountered is different. It is imperative to have prior knowledge of the facility in which the unit is to be installed and to evaluate what type of tools, wall anchors, etc. will be needed to make the installation as problem free as possible.

2.5 POWER SUPPLY INSTALLATION (See Figure 2)

WARNING

NEVER TRY TO SUPPORT THE WEIGHT OF THE POWER SUPPLY USING ONLY DRYWALL ANCHORS. THE POWER SUPPLY MUST HAVE A STUD FOR SUPPORT!

CAUTION

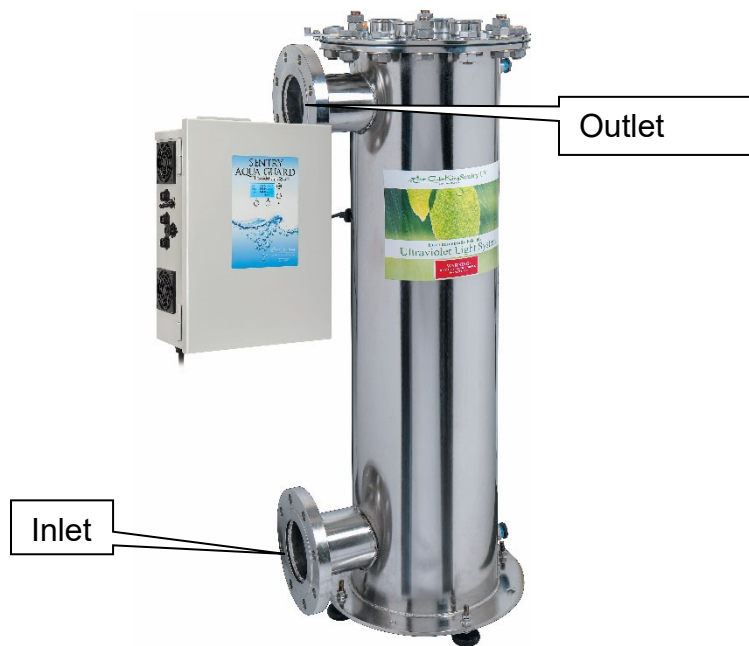
THE POWER SUPPLY MAY CAUSE INTERFERENCE WITH SENSITIVE ELECTRONICS. AVOID INSTALLING THE POWER SUPPLY AND LAMP LEAD WIRE NEAR SENSITIVE ELECTRONICS.

Locate a space on the wall, in the pump room, that will accommodate the dimensions of the power supply. The power supply must mount within 5 feet of the UV chamber to ensure that the cables can easily reach the chamber and within 3 feet of a 120 volt, 15-amp wall outlet protected by a ground fault circuit interrupter. On a drywall installation, locate studs to hold the weight of the power supply. Use concrete anchors for installations into concrete walls. Install in an easy to access location. Some installations may require a mounting stand be fabricated based on chamber access.

2.6 UV CHAMBER INSTALLATION (See Figure 2)

Place the UV Chamber on a level surface within 5 feet of the power supply. The chamber may be installed in a vertical or horizontal position. Ensure that the unit is accessible for service by leaving at least 3 feet of open space above or beside the chamber to allow for lamp and sleeve removal. U shaped horizontal installations require that the water is plumbed going down into the inlet of the chamber and coming out in the up direction from the outlet of the chamber. Z shaped horizontal installations should be plumbed so the water is flowing up into the chamber and up out of the chamber. Vertical installations require that the water is plumbed going into the inlet of the chamber (bottom) and out of the outlet of the chamber (top). Secure the chamber with suitable hardware.

Figure 2



2.7 QUARTZ SLEEVE INSTALLATION

CAUTION

LAMPS AND QUARTZ SLEEVES ARE MADE OF GLASS AND ARE EXTREMELY DELICATE. TAKE CARE WHEN HANDLING OR REPLACING THESE COMPONENTS. WEAR COTTON GLOVES WHEN HANDLING LAMPS. HOLD LAMPS BY THE ENDS ONLY. NEVER TOUCH THE GLASS WITH BARE HANDS. WIPE ANY FINGERPRINTS FROM LAMPS WITH ALCOHOL.

QUARTZ SLEEVES ARE SHIPPED WITH SMALL RUBBER STOPS INSIDE THE BOTTOM OF THE SLEEVE. THIS RUBBER STOP MUST REMAIN IN PLACE TO PREVENT DAMAGE FROM LAMP INSTALLATION.

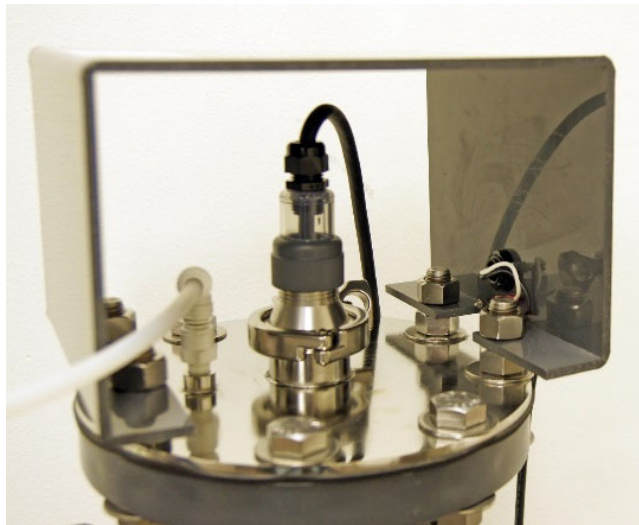
Place a gasket on the quartz sleeve quick disconnect flange. Carefully lower the quartz sleeve assembly into the chamber. On stainless chambers for SAG480 through SAG1200, the quartz sleeves sit on top of spring assemblies. Quartz sleeves must be carefully lined up with the spring or damage to the sleeve may occur. When the quartz sleeve is properly located in the spring assembly the quick disconnect quartz sleeve assembly will rest about ¼" to ½" above the 2" gasket. Gently press the quick disconnect quartz sleeve assembly into place and install the quick disconnect clamp to secure the sleeve in place.

2.8 LAMP INSTALLATION

CAUTION

THE WIRING CONNECTOR FOR THE LAMP MUST BE INSTALLED ON THE LAMP BEFORE THE LAMP IS LOWERED INTO THE QUARTZ SLEEVE OR DAMAGE TO THE LAMP OR QUARTZ SLEEVE MAY OCCUR.

Place the connector onto the lamp and lower the lamp all the way to the bottom of the quartz sleeve. Screw the viewing cap onto the quick disconnect quartz sleeve assembly. Push the lamp lead wire through the viewing cap until the lamp is against the rubber cushion at the bottom of the quartz sleeve and tighten the liquid tight gland.

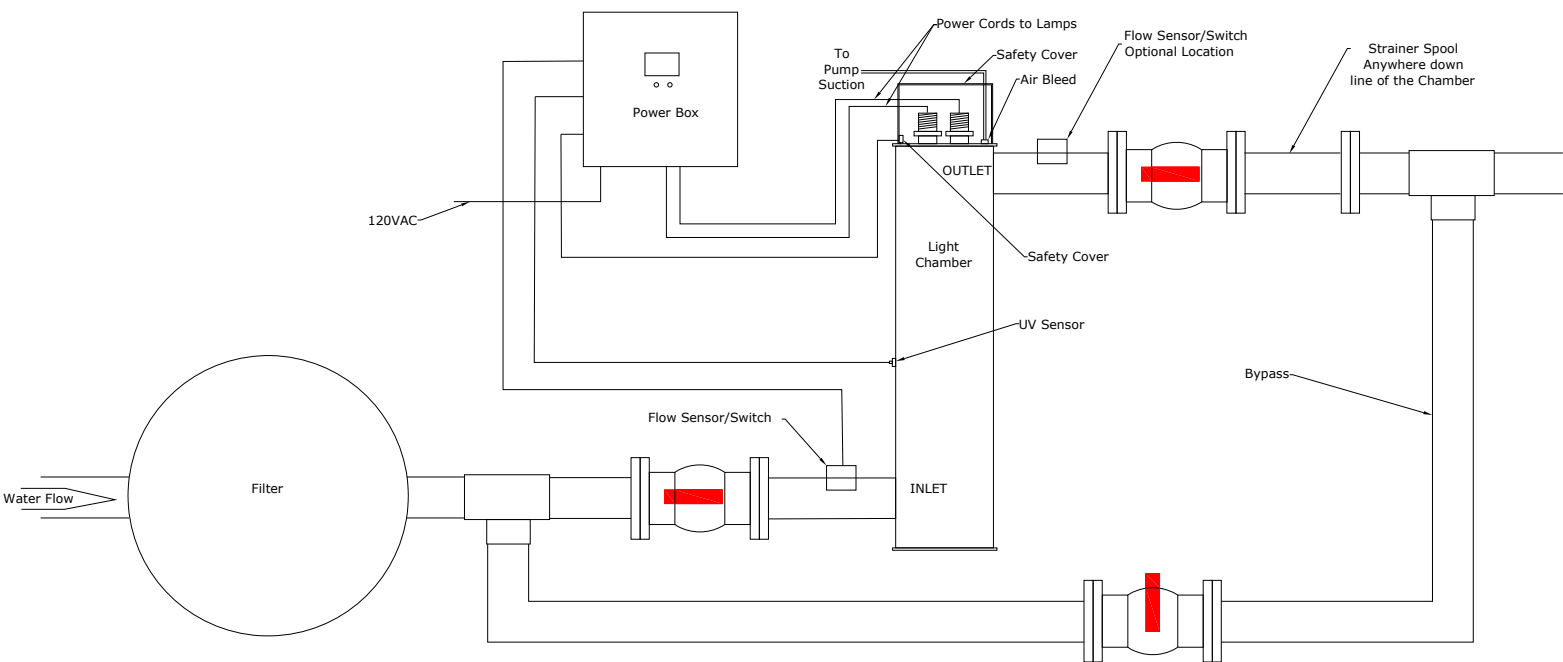


2.9 PLUMBING THE UV CHAMBER

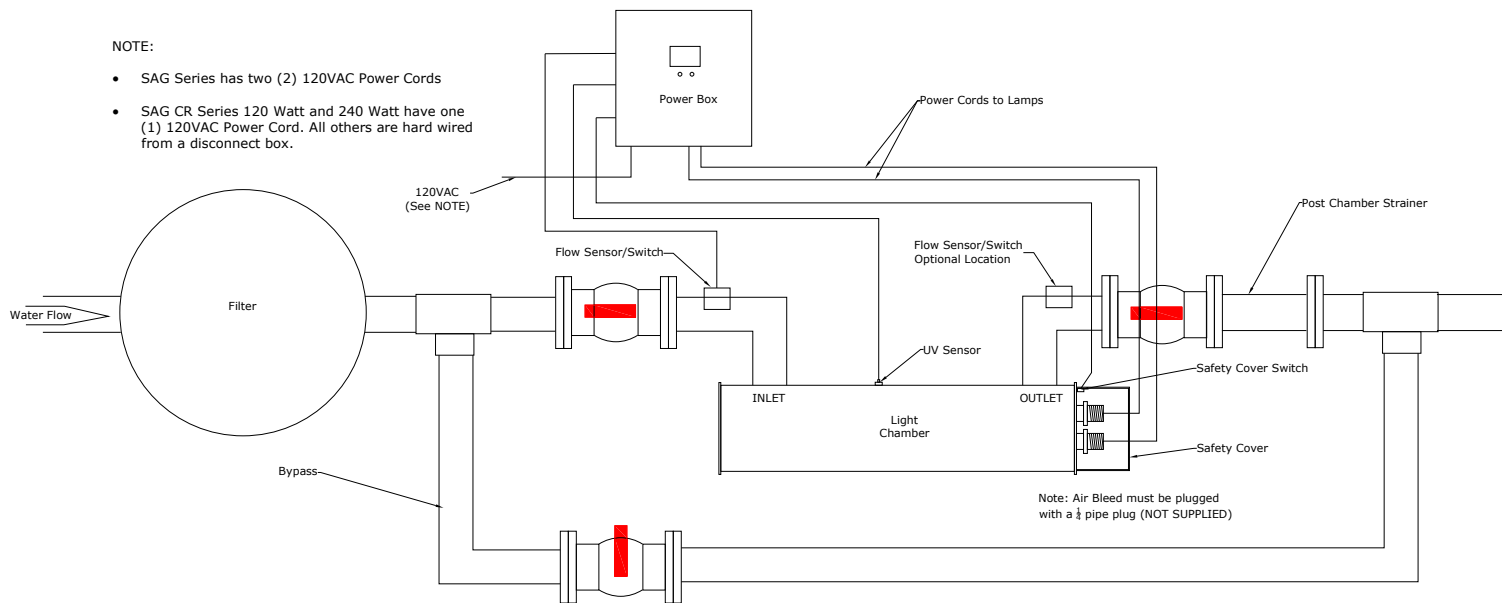
WARNING

FOR PROPER OPERATION, DO NOT INSTALL IN A BYPASS. THE ENTIRE WATER VOLUME OF THE CIRCULATION SYSTEM SHOULD PASS THROUGH THE CHAMBER. NOTE: SPRAY PADS NEED TO BE INSTALLED WITH THE PLUMBING BACK TO THE RESEVIOR FOR LOW SPEED PUMPS TO CONTINUE CIRCULATION THROUGH THE CHAMBER, ALLOWING CONTINUOUS OPERATION OF THE UV SYSTEM.

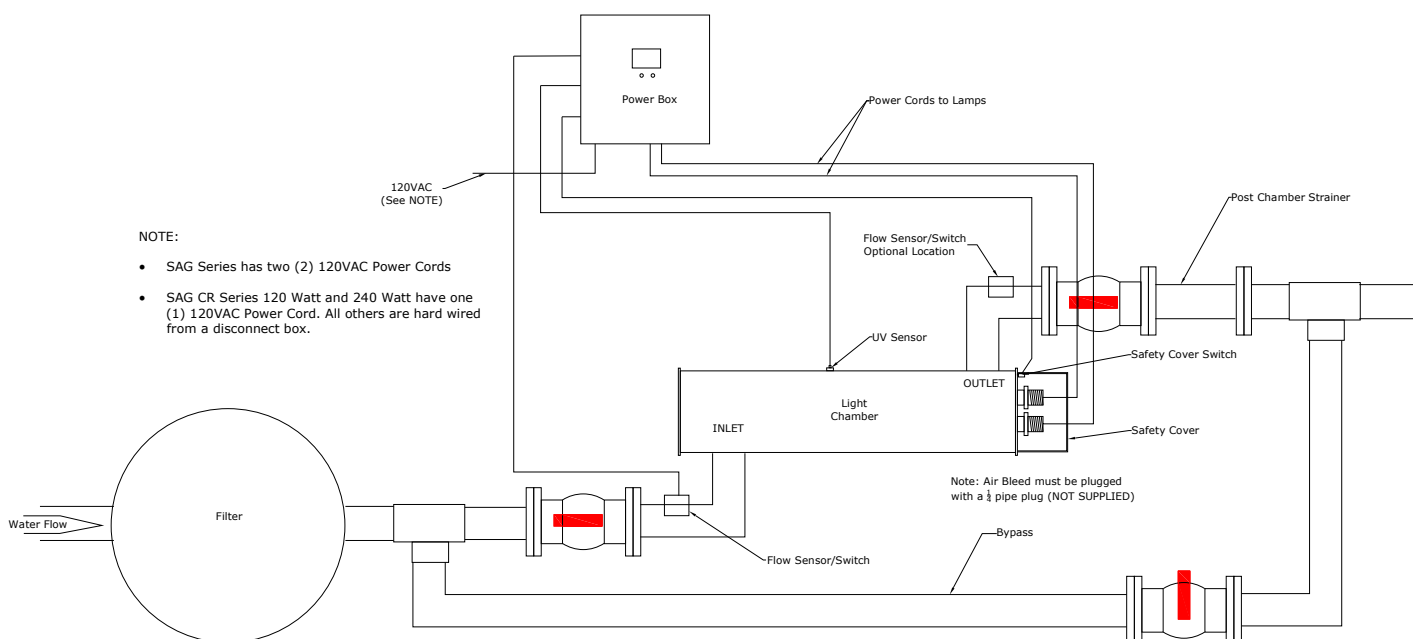
UV system installation diagram



UV system installation diagram Horizontal "U"



UV system installation diagram Horizontal "Z"



The entire water volume of the circulation system should pass through the UV chamber. Plumb the inlet of the UV chamber as close to the outlet of the pool filter as possible. Plumb a bypass around the UV chamber to facilitate service. Use valves to isolate the chamber from the circulation system.

2.10 PLUMBING THE STRAINER

The strainer is installed on outlet side of the UV chamber plumbing. The strainer can be installed anywhere in the return line plumbing that is downstream of the UV chamber outlet.

2.11 FLOW SWITCH INSTALLATION

Tap the 1/2 inch NPT flow switch into the Chamber inlet or outlet. The flow switch must be installed within the isolation valves. Connect the flow switch wire to the connection on the side of the power supply marked Flow.

2.12 OPTIONAL FLOW METER INSTALLATION

The Sentry Aqua Guard system is designed to display flow in real time using a GF brand Signet 2536 Rotor-X-Flow Sensor or a GF brand Signet 2551 Blind Magmeter. Install one of these flow sensors according to the manufacturer's instructions within the isolation valves. Connect the flow switch wire to the connection on the side of the power supply marked Flow.

2.13 PLUMBING THE AIR BLEED ON VERTICAL MOUNT CHAMBERS

NOTE: Horizontal installations do not need an air bleed. Plug the holes with a 1/4 NPT pipe plug (not supplied) or by installing and closing the supplied valve.

1. Insert 3/8" elbow into the 3/8" female adapter (shown in figure 1) on top of the UV chamber.
2. Tap 3/8" NPT valve (shown in figure 2) into the pump suction plumbing.
3. Connect the two points with 3/8" tubing.
4. Turn on the pool pump then open the 3/8" valve.



Figure 1



Figure 2

2.14 SYSTEM WIRING

WARNING

THE EARTH TERMINALS AND THE EQUIPMENT BONDING WIRE MUST BE CONNECTED. THE ELECTRICAL SUPPLY MUST MATCH THE SYSTEM RATED VOLTAGE AND CURRENT. ENSURE THAT POWER IS LINKED TO THE MAIN PUMP POWER SOURCE FOR THE POOL TO ENSURE THAT THE SYSTEM NEVER OPERATES WHEN THE POOL PUMPS ARE OFF.

All systems must be wired so that when the pool circulation pump is off the power to the ChlorKing® Sentry UV System is off with the exception of spray pads that may have bypass flow through the chamber when the main pumps are off.

SAG120 and SAG240 units are cord connected at the factory for a 120 Vac, 15-amp wall outlet. Connect the power cord to a 120 Vac electrical outlet protected by a ground fault circuit interrupter. SAG480, SAG720, SAG960, and SAG1200 units require permanent field wiring to 120 Vac, 15-amp service protected by a ground fault circuit interrupter.

2.15 SAFETY COVER WIRING

Place the safety cover on top of the UV chamber and attach with the supplied nuts. Be sure the micro-switch is depressed when the cover is installed. Connect the safety cover wire to the connector on the side of the power supply marked Safety Cover.

2.16 UV SENSOR INSTALLATION

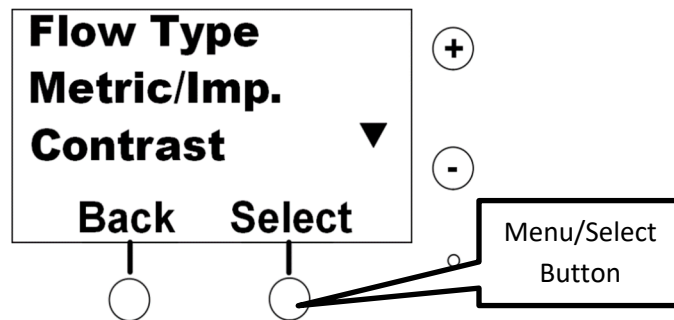
Install the UV sensor into the sensor body. Hand tighten the UV sensor nut. Connect the UV sensor wire to the connector on the side of the power supply marked UV Sensor.

2.17 BONDING THE SYSTEM

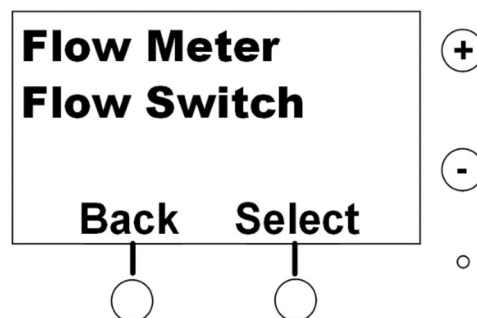
All ChlorKing® Sentry UV System systems require bonding. Bonding is accomplished by connecting a minimum 8 AWG bonding wire from the bonding grid in the equipment room to the UV system power supply and the UV system chamber. The bonding lugs on the power supply and chamber are clearly marked with a decal that reads “Bonding Lugs”.

2.18 UV DISPLAY SETTINGS FOR GF SIGNET FLOW SENSORS

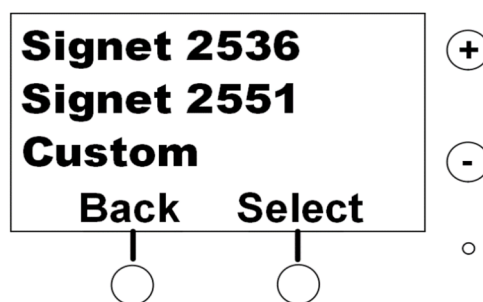
The flow monitoring type will need to be selected and set up on the display. Press the MENU button and scroll using the +/- buttons to highlight Flow Type. Press Select.



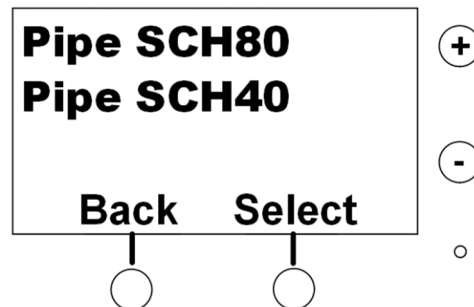
Highlight and Select Flow Meter



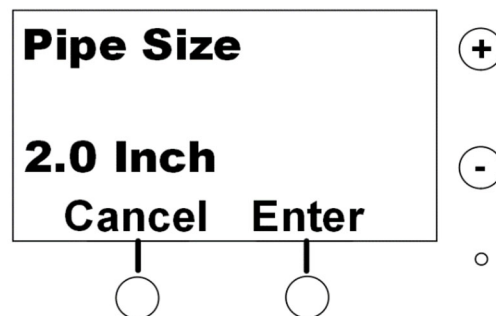
Highlight the flow meter of choice. This product supports the GF Signet 2536 and 2551. Press Select



Highlight and select the schedule of the pipe that the flow sensor is installed in.

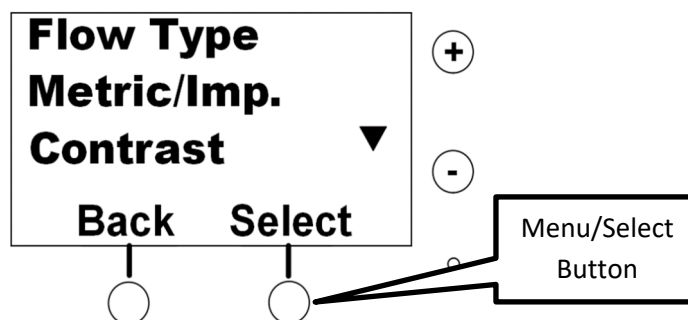


Scroll with the +/- keys to locate pipe size that the flow sensor is installed in, press Enter.

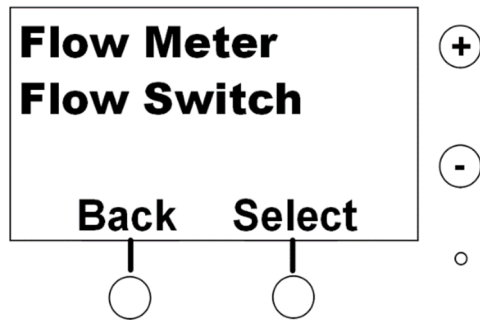


2.19 UV DISPLAY SETTINGS FOR SYSTEMS WITH FLOW SWITCHES

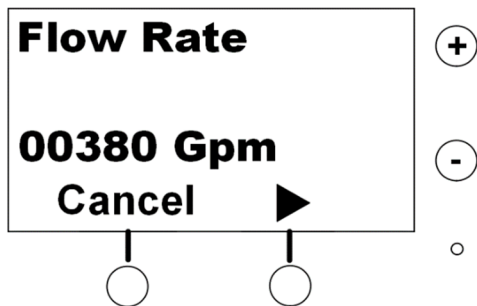
The flow monitoring type will need to be selected and set up on the display. Press the MENU button and scroll using the +/- buttons to highlight Flow Type. Press Select.



Highlight and Select Flow Switch.



Enter the actual pool flow rate.



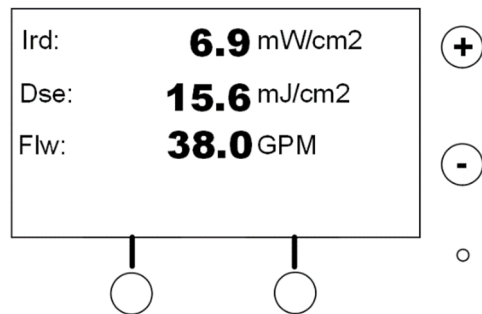
SECTION 3 OPERATION

3.1 START-UP PROCEDURES

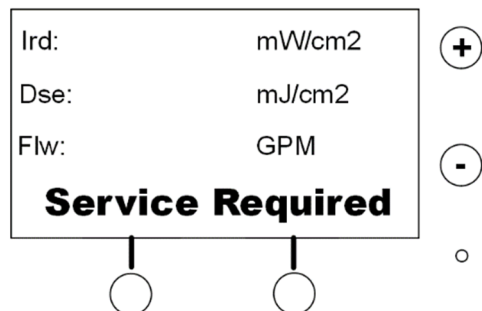
Open the chamber isolation valves and close any bypass valves. Allow the chamber to fill with water. Turn the system on with the switch located on the power supply. Operate the system for 10 minutes to allow the lamps to warm up to full power.

3.2 UV DISPLAY IN OPERATION

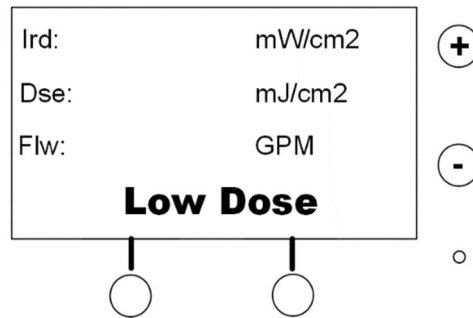
The UV display can display UV dose in mJ/cm^2 , UV intensity in mW/cm^2 or W/M^2 , and flow in real time.



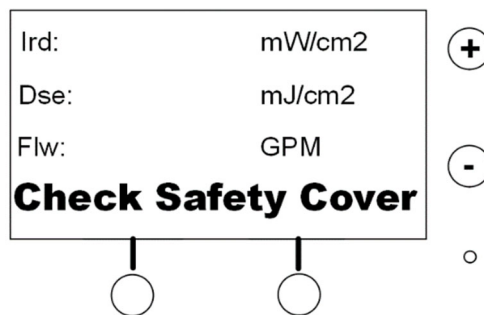
If UV dose falls below $39\text{mJ}/\text{cm}^2$ the message SERVICE REQUIRED will scroll across the display. This indicates the need for quartz sleeve and sensor window service or lamp replacement.



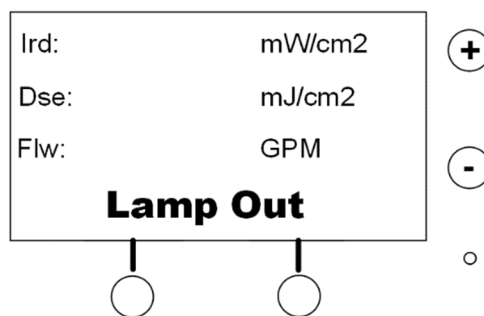
If UV dose falls to below 30mj/cm² the message LOW DOSE will scroll across the display.



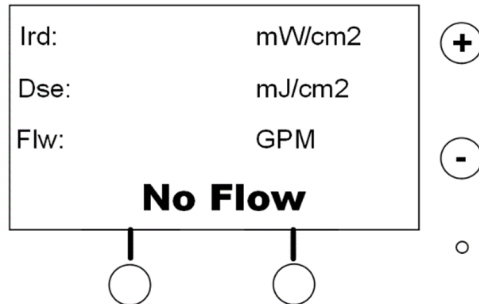
In the event the safety cover is removed while the unit is in operation, the lamps will go out and the message CHECK SAFETY COVER will scroll across the display.



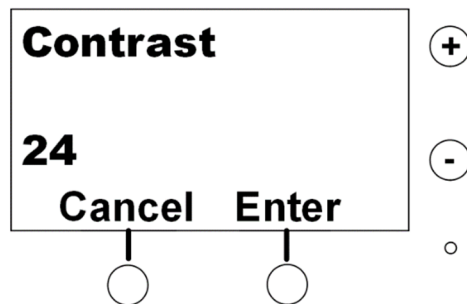
When one or more lamps are not functional the message LAMP OUT will scroll across the display.



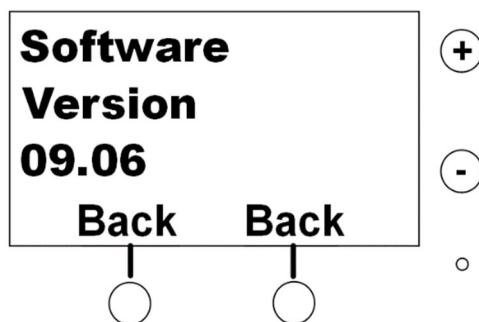
If the flow monitoring device senses no or low flow, the message NO FLOW will scroll across the display.



To change the display contrast, press menu, select contrast and adjust with the +/- buttons.



To view the display software version, press menu, software version.



SECTION 4 MAINTENANCE

4.1 ROUTINE MAINTENANCE

Daily Check

Check the UV display on the power supply daily. Under normal operating conditions, the UV display will indicate a value over 40mJ/cm².

Cleaning the Quartz Sleeve and UV Sensor Window Manually

CAUTION

LAMPS AND QUARTZ SLEEVES ARE MADE OF GLASS AND ARE EXTREMELY DELICATE. TAKE CARE WHEN HANDLING OR REPLACING THESE COMPONENTS. WEAR COTTON GLOVES WHEN HANDLING LAMPS. HOLD LAMPS BY THE ENDS ONLY. NEVER TOUCH THE GLASS WITH BARE HANDS. WIPE ANY FINGERPRINTS FROM LAMPS WITH ALCOHOL.

QUARTZ SLEEVES ARE SHIPPED WITH SMALL RUBBER STOPS AT THE BOTTOM OF THE SLEEVE. THIS RUBBER STOP MUST REMAIN IN PLACE TO PREVENT DAMAGE FROM LAMP INSTALLATION.

Unplug the unit from the power source to prevent the risk of electric shock or system damage. Isolate the chamber from the pool circulation system by opening the bypass valve and closing the inlet and outlet valves and the air bleed if installed. Drain the chamber. Remove the safety cover. Loosen the liquid tight gland and remove the viewing cap. Lift the lamp out of the quartz sleeve without disconnecting it from the wiring harness. Once the lamp is completely free of the quartz sleeve it can be safely disconnected from the wiring harness. Remove the quick disconnect clamp and remove the sleeve from the chamber.

NOTE: If the power supply is within 5 feet of the UV chamber, the quartz sleeve may be removed without disconnecting or removing the lamp.

WARNING

Read all cautions and directions provided with the muriatic acid used. Always add acid to water. Use only with adequate ventilation. If strong odor is noticed, STOP, ventilation is inadequate. Leave area immediately. If the work area is not well ventilated, you MUST use a properly fitted and maintained NIOSH approved respirator for acid fumes.

Clean the quartz sleeve by wiping with a clean cotton cloth and a standard glass cleaner. Sleeves with calcium accumulation will require cleaning with a 5:1 water and

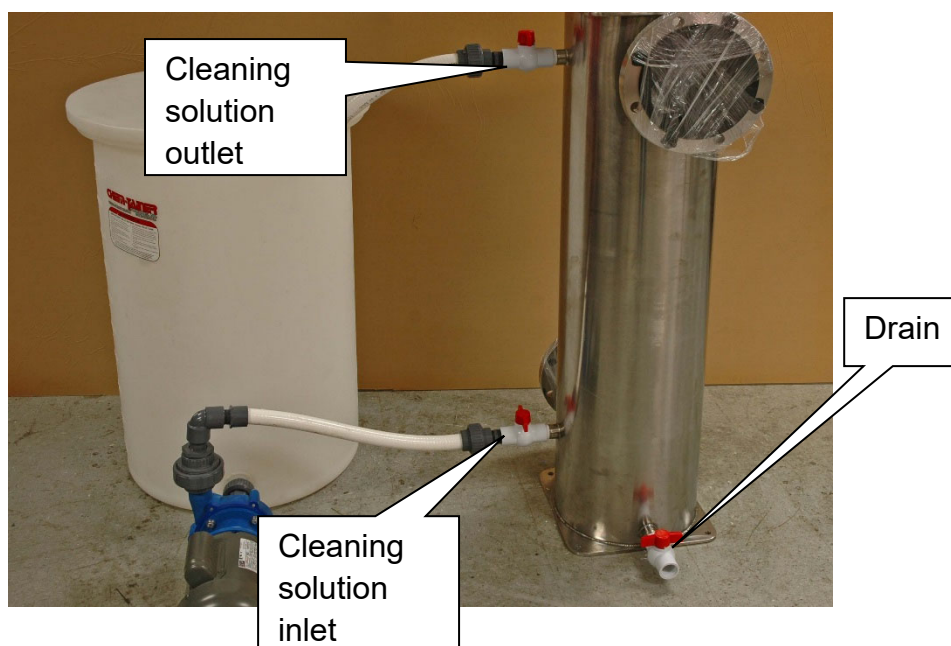
muriatic acid solution. Check the gasket on the quartz sleeve quick disconnect flange. Carefully lower the quartz sleeve assembly into the chamber. On stainless chambers for SAG480 through SAG1200 the quartz sleeves sit on top of spring assemblies. Quartz sleeves must be carefully lined up with the spring or damage to the sleeve may occur. (see page 24 for details) Gently press the quartz sleeve into place and install the quick disconnect clamp to secure the sleeve in place. Reinstall the lamp and system safety cover.

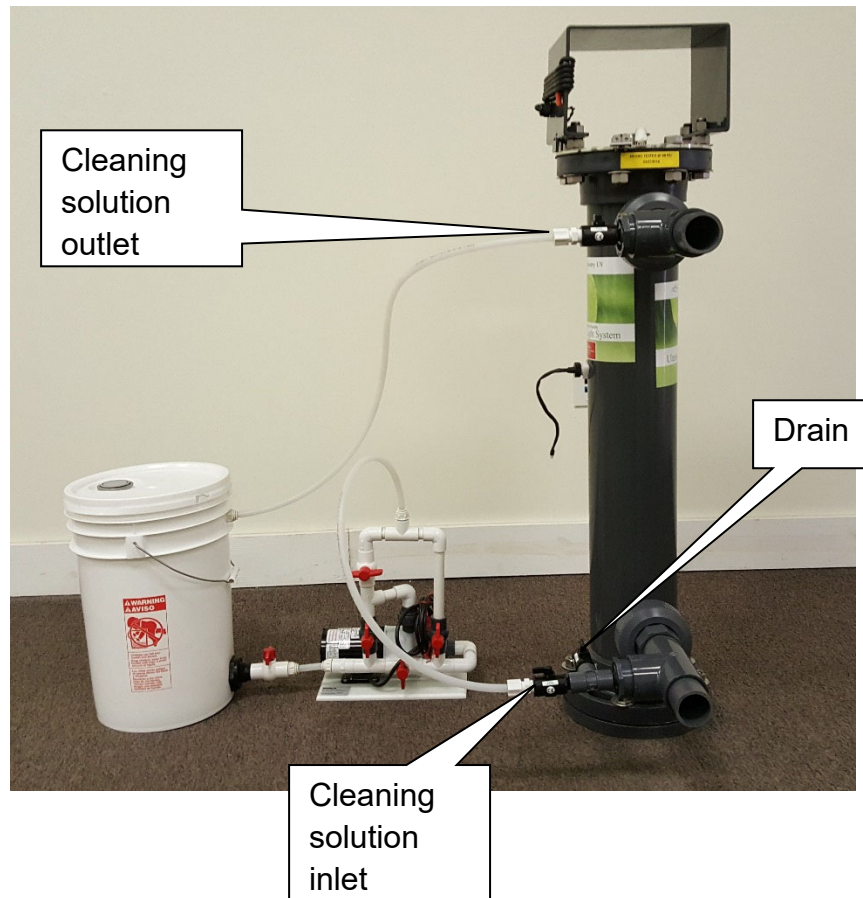
Remove the UV sensor from the sensor body window, then remove the sensor body window from the chamber boss. Clean the face of the quartz window by wiping with a clean cotton cloth and standard glass cleaner. Windows with calcium accumulation will require cleaning with a 5:1 water and muriatic acid solution. Reinstall the sensor body, window making sure the O-ring is in place. Reinstall the sensor.

Cleaning Quartz Sleeve and UV Monitor Window Chemically

Unplug the unit from the power source to prevent the risk of electric shock or system damage. Isolate the chamber from the pool circulation system by opening the bypass valve and closing the inlet and outlet valves. Drain the chamber. Connect a ChlorKing Acid Washer or other suitable cleaning setup to the chamber. See examples in **Figure 3**. Water and muriatic acid are mixed in the cleaning solution tank at a ratio of 5:1. Five parts water to one-part muriatic acid. Flush the chamber for 2 to 5 minutes with cleaning solution. Drain the cleaning solution from the chamber. When using the ChlorKing Acid Wash System the solution is pumped back into the cleaning solution tank for reuse. Remove the cleaning solution hoses from the chamber and close the cleaning solution valves. Open the inlet and out valves to restore pool circulation to the chamber.

Figure 3





Lamp Replacement

Lamps are designed to provide a useful service life of 13,000 hours. After that time, the lamps will need replacing.

CAUTION

LAMPS AND QUARTZ SLEEVES ARE MADE OF GLASS AND ARE EXTREMELY DELICATE. CARE SHOULD BE TAKEN WHEN HANDLING OR REPLACING THESE COMPONENTS. WEAR COTTON GLOVES WHEN HANDLING LAMPS. HOLD LAMPS BY THE ENDS ONLY. NEVER TOUCH THE GLASS WITH BARE HANDS. WIPE ANY FINGERPRINTS FROM LAMPS WITH ALCOHOL.

Unplug the unit from the power source to prevent the risk of electric shock or system damage. Loosen the liquid tight gland and remove the viewing cap. Lift the lamp out of

the quartz sleeve without disconnecting it from the wiring harness. Once the lamp is completely free of the quartz sleeve it can be safely disconnected from the wiring harness.

CAUTION

THE WIRING CONNECTOR FOR THE LAMP MUST BE INSTALLED ON THE LAMP BEFORE THE LAMP IS LOWERED INTO THE QUARTZ SLEEVE OR DAMAGE TO THE LAMP AND SLEEVE MAY OCCUR.

Place the connector onto the lamp and lower the lamp all the way to the bottom of the quartz sleeve. Screw the viewing cap onto the quick disconnect quartz sleeve assembly (see page 25) and tighten the liquid tight gland.

4.2 RECOMMENDED BROKEN LAMP HANDLING PRACTICES

Guidance on proper methods of handling broken fluorescent lamps is available from the US EPA and from many state agencies and local health and environmental authorities. The EPA guidelines can be found at <http://www.epa.gov/mercury/spills/index.htm>.

SECTION 5 WARRANTY INFORMATION

5.1 HOW TO OBTAIN HELP

To get help under this warranty, visit your local dealer or contact ChlorKing® - Sentry UV at 1-800-536-8180 or by email at www.sentryuv.com or www.chlorking.com. Please have available the model number, the system serial number, the date of purchase, the name of the dealer from whom you purchased your ChlorKing® - Sentry UV product, as well as a description of the problem that you are experiencing. A ChlorKing® - Sentry UV technician will help you troubleshoot the problem and locate the defective part.

5.2 RETURNING A CHLORKING® - SENTRY UV PRODUCT

To return a ChlorKing® - Sentry UV product, you must first call a ChlorKing® - Sentry UV technician at the number above and discuss the problem you are experiencing. The technician will then determine your warranty status and will let you know whether you need to send the unit back for further observation and testing.

If so, ChlorKing® - Sentry UV will issue you a Return Authorization (RA) number that must be prominently displayed on all sides of the packaging. The unit must be properly packed in bubble wrap, placed in a cardboard box, then placed in another larger cardboard box filled with packing (Styrofoam) “peanuts” or bolted onto a secured pallet with side walls and shipped to the following address: (Insurance on the package is also required.)

Sentry UV, Inc.
Return Service Department
2935 Northeast Parkway
Atlanta, GA 30360

Warranty will be based on the ChlorKing® - Sentry UV technician's opinion as to whether the defect was originated at the time of manufacture. Removing the unit from its current installed position, as well as the return shipping charges to ChlorKing® - Sentry UV shall be at customer's expense. This warranty does not include shipping and handling charges, which must be paid before package is shipped. Once the unit is received, evaluated, and the problem determined to be due to an error in manufacturing, the repairs/adjustments will be made and the unit will be shipped back to customer at ChlorKing® - Sentry UV's expense. However, should ChlorKing® - Sentry UV determine that problem is NOT caused because of manufacturer error, ChlorKing® - Sentry UV will call customer to discuss findings and options.

If the item in question is no longer under warranty, ChlorKing® - Sentry UV will provide an estimate of cost to repair. Your authorization and a valid credit card will be required prior to making any repairs.

5.3 ACTIVATING/VALIDATING WARRANTY AND MAKING A WARRANTY CLAIM

To validate this warranty, establish proof of purchase, and make a warranty claim, you must complete and return the Owner Registration for Warranty Form, and submit a copy of the original receipt clearly showing the date and place of purchase.

5.4 WARRANTIES FOR CHAMBER, PARTS, LAMPS, AND BALLASTS

ChlorKing® - Sentry UV will, to the original purchaser, warranty the Stainless Steel UV Light Product from defects in material and workmanship for 12 months or one (1) year from the original date of purchase as validated by the proof of purchase or receipt. During this time, ChlorKing® - Sentry UV will repair or replace, at its option, any defective parts covered by the warranty:

Chamber. The stainless chamber carries a **three-year** warranty. You may be required to return item for inspection. The PVC chamber carries a **one-year** warranty.

PVC Parts. All PVC parts carry a **one-year** warranty. You may be required to return item(s) for inspection.

Lamps. All lamps carry a **90-day** only warranty, and only for its intended electrical use. If there is a manufacturer's defect found with the lamp within the 90 days, ChlorKing® - Sentry UV will replace it.

5.5 WARRANTIES FOR QUARTZ SLEEVE

ChlorKing® - Sentry UV does not guarantee the quartz sleeve, because it is made entirely of glass and is easily broken.

5.6 GENERAL CONDITIONS AND LIMITATIONS

None of the above warranties cover damage caused by improper use or maintenance, accidents, acts of God, or minor scratches or imperfections that do not materially impair the operation of the product. Nor do the warranties cover products not installed as outlined in this document.

The warranty on lamps, ballasts, housings, or the unit in its entirety does not include shipping and handling charges, which will be collected at the time of shipment.

Parts replaced under the warranties above are covered to the end of the ORIGINAL warranty period.

Warranty is void if unit is not connected to a GFCI 120V/240V breaker.

The following also void warranty:

If product labels are defaced or removed.

If housing has been painted.

If product has been improperly installed or maintained by user. Product must be serviced by ChlorKing® - Sentry UV or authorized personnel only.

If product has been abused, misused or damaged by the user.

If product has been damaged by electrical surges, electrical spikes, electrical brownouts, or improper voltage.

We have set forth recommendations and certain installation requirements in this document. Provided they are followed, and the unit is operated in the environment and manner intended, we will repair or replace a defective part within the 12-month period from the time of purchase.

Any damage to the unit as a result of installation, shipping, packing, and/or handling is not covered by this warranty. Any implied warranty other than written herein is not part of this warranty. This warranty gives you specific rights. You may have other rights, which will vary from state to state. This warranty cannot be transferred. Any attempt to make repairs through any source other than ChlorKing® - Sentry UV or authorized person will void the warranty.

ChlorKing® - Sentry UV does not assume any liability for personal injury or property damage caused by the use or misuse of any of the above products. ChlorKing® - Sentry UV shall not in any event be liable for special, incidental, indirect, or consequential damages. ChlorKing® - Sentry UV's liability shall, in all instances, be limited to repair or replacement of the defective product or part and this liability will terminate upon expiration of the application warranty period.

Warranty Registration Card

Please complete and return to activate ChlorKing® warranty
Please mail or fax to ChlorKing® inc. P.O. Box 80823, Atlanta, GA, 30366 Fax: 770-685-6576

Dealer Name: _____

Address: _____ City: _____

State: _____ Zip: _____ Tel: _____

Installation site of equipment: _____

Address: _____ City: _____

State: _____ Zip: _____

Date of purchase: _____ Serial number: _____

1. Pool size: _____ 2. Pool finish: _____

3. Indoor / Outdoor: _____ 4. Heated: Yes / no

5. Filter Type: _____ 6. Pool Age: _____

7. New or existing pool: _____ 7. Controller installed: Yes / No

8. If controller installed, what make and model: _____