

INFINITY™

LIQUID DISINFECTION SYSTEMS



Owner's Manual

Installation, Operation & Maintenance

ATLANTIC **A** **ULTRAVIOLET**
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TABLE OF CONTENTS

SAFETY WARNINGS	3
SAFETY INSTRUCTIONS	3
PRODUCT APPLICATION	4
CONSTRUCTION	4
PRINCIPLE OF OPERATION	4
LIMITATION OF USE	4
WATER QUALITY	4
INSTALLATION	5
LOCATION.....	5
INSTALLATION.....	5
DIMENSIONAL DATA	6
MAINTENANCE	6
INSPECTION	6
LAMP INSTALLATION OR REPLACEMENT	7
QUARTZ SLEEVE CLEANING OR REPLACEMENT.....	8
REPLACEMENT OF BROKEN QUARTZ SLEEVE	9
TROUBLESHOOTING	10
REPLACEMENT PARTS	11
WARRANTY	12

These instructions generally describe the installation, operation and maintenance of the **INFINITY™** line of water purifiers. Questions that are not specifically answered by these instructions should be directed to the Factory.

Atlantic Ultraviolet Corporation takes all possible precautions when packaging equipment to prevent damage. Carefully inspect and report all damage upon receipt of product. Do not install damaged equipment.

Follow all instructions on all labels and tags. Carefully inspect all packing materials before discarding to prevent the loss of accessories, mounting hardware, spare parts or instructions.



SAFETY WARNINGS

- All personnel should be alerted to the potential hazards indicated by the product safety labeling on this unit.
- The following conventions are used to indicate and classify precautions in this manual and on product safety labeling. Failure to observe precautions could result in injury to people or damage to property.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



Danger indicates an **IMMINENTLY** hazardous situation, which, if not avoided, **WILL** result in death or serious injury.



Warning indicates a **POTENTIALLY** hazardous situation, which, if not avoided, **COULD** result in death or serious injury.



Caution indicates a **POTENTIALLY** hazardous situation, which, if not avoided, **MAY** result in minor or moderate injury.



Caution used without the safety alert symbol indicates a potentially hazardous situation, which, if not avoided, may result in property damage.



This symbol/pictorial is used to identify an **ELECTRICAL SHOCK** or **ELECTROCUTION** hazard.



This symbol/pictorial is used to identify an **ULTRAVIOLET LIGHT** hazard.

- Product safety labels should be periodically inspected and cleaned, as necessary, to maintain good legibility. Always replace illegible safety labels. Contact factory to obtain replacement safety labels.

SAFETY INSTRUCTIONS

▲ WARNING: To guard against injury, basic safety precautions should be observed, including the following:

1. Read and follow ALL safety instructions.
2. Do not use this water purifier for other than its intended purpose as described in this manual.
3. Do not alter design or construction.
4. **▲ DANGER:** To prevent the risk of severe or fatal electrical shock, special precautions must be taken since water is present near electrical equipment. Always disconnect power before performing any maintenance.
5. **▲ WARNING:** Avoid exposure to direct or strongly reflected germicidal ultraviolet rays. Germicidal ultraviolet rays are harmful to the eyes and skin.
6. Intended for indoor use only. The water purifier should be protected from the elements and from temperatures below freezing.
7. Do not operate water purifier if power cord or plug is damaged.
8. Electrical power supplied, to the water purifier, **MUST** match power requirements listed on the water purifier.
9. **▲ CAUTION:** Do not operate without proper electrical ground.
10. Do not exceed water purifier's maximum rated flow capacity.
11. Do not exceed maximum operating pressure of 100 PSI.
12. Read and follow all notices and warnings on the water purifier.
13. **SAVE THESE INSTRUCTIONS.**

PRODUCT APPLICATION

CONSTRUCTION

- The water purifier is designed to mount horizontally. Mount on a horizontal surface or vertical surface using the optional wall mounting kit.
- The water purifier chamber is passivated and electropolished Stainless Steel Type 316.
- Easy-off end caps allow for quick and easy lamp change, without disconnecting from the water supply or draining the purifier. No tools are required.

PRINCIPLE OF OPERATION

The INFINITY™ design has been carefully conceived to provide adequate germicidal dosage throughout the disinfection chamber. The dosage, as it applies to ultraviolet disinfection, is a function of time and the intensity of ultraviolet radiation to which the water is exposed. The exposure time, in seconds, is the total time it takes the water to flow through the disinfection chamber exposing it to the germicidal lamp. Exposure time is related to the flow rate; the higher the flow rate, the lower the exposure time or the lower the flow rate, the higher the exposure time. The ultraviolet intensity is the amount of energy, per unit time, emitted by the germicidal lamp. The Dosage is the product of ultraviolet intensity and the exposure time. The operation of the INFINITY™ is as follows:

1. Water enters the purifier and flows into the annular space between the quartz sleeve and the chamber wall.
2. Suspended microorganisms are exposed to the ultraviolet rays emitted by the germicidal lamp.
3. The LED indicator light, located on the ballast, provides visual indication of germicidal lamp operation
4. Water leaving the purifier is instantly ready for use, no further contact time is required.

LIMITATION OF USE

The water purifier is intended for the use with visually clear water, not colored, cloudy or turbid.

See “**Water Quality**” section below.

The water purifier is **NOT** intended for the treatment of water that has an obvious contamination or intentional source, such as raw sewage; nor is the unit intended to convert wastewater to microbiologically safe drinking water.

WATER QUALITY

Water quality plays a major role in the transmission of germicidal ultraviolet rays. It is recommended that the water does not exceed the following maximum concentration levels:

Table 1 - Maximum Concentration Levels

Turbidity:	5 NTU
Manganese:	0.05mg/l
Total Suspended Solids:	10 mg/l
pH:	6.5 - 9.5
Color:	None
Hardness:	6 GPG
Iron:	0.3 mg/l

Effectively treating water with higher concentration levels than listed above can be accomplished, but may require added measures to improve water quality to treatable levels. If, for any reason, it is believed the ultraviolet transmission is not satisfactory, contact the factory.

INSTALLATION

LOCATION

1. The water purifier is intended for indoor use only. The water purifier should be protected from the elements and from temperatures below freezing. The ambient temperature, in the area surrounding the water purifier, should be between 33° F and 100° F.
2. Electrical power supplied to the water purifier **MUST** match power requirements listed on the water purifier. Use of a voltage surge protector is recommended.
3. The water purifier should be located in a dry, well-lit area, which provides enough room to perform routine maintenance. This includes a minimum distance of one chamber length from the chamber end, to allow for cleaning and/or the changing of the lamp and quartz sleeve as well as a minimum of 6' on the opposite end of the water purifier.
4. The water purifier should always be located closest to the point of use. This reduces the chance of the purified water being re-contaminated by bacteria in the water distribution system after the water purifier.
5. The water purifier should be located after all other water devices, such as De-ionizers, Water Softeners, Carbon Filters, Pre-Filters, Reverse Osmosis, Pressure Tanks, and Pumps. This reduces the chance of the purified water being re-contaminated by bacteria in any of these units.

INSTALLATION

1. Remove water purifier from shipping carton. Inspect water purifier, power cord and plug for damage. Do not operate if there is any damage to the purifier, power cord or plug.
2. Units occasionally experience damage in shipment due to the fragility of the quartz sleeve. It is therefore recommended to inspect the water purifier for damage to the quartz sleeve after it has been removed from the shipping carton. Each end of the unit as well as the inlet and outlet should be viewed to see if the quartz sleeve has experienced damage. If the quartz sleeve shows signs of damage it should be replaced before the purifier is pressurized. See **“Quartz Sleeve Cleaning or Replacement”** in the **“Maintenance”** section for the proper method of replacing the quartz sleeve in your water purifier.
3. The water purifier should be mounted horizontally on a flat dry surface. The purifier should not be solely supported by its plumbing connections.
4. The water purifier must be connected to the cold water line only.
5. It is recommended that a 5-micron sediment filter be installed, in line, prior to the water purifier. The sediment filter will stop or trap any particulates from entering the water purifier. Particulates may cause damage to the quartz sleeve, as well as interfere with the purifier's ability to disinfect the water. The sediment filter may also help to reduce the amount of routine cleaning of the quartz sleeve.
6. Shut off valves should be installed on both the inlet and outlet sides of the water purifier. **The use of bypass valves is not recommended.** The shut off valves allow the purifier to be isolated from the water supply, which is required when removing the quartz sleeve.
7. Unions should be installed on both the inlet and outlet of the water purifier; this will allow easy removal of the water purifier from the plumbing, if required.
8. When all plumbing connections are complete, allow water to enter the water purifier at a low flow rate, until the purifier is pressurized. With the purifier pressurized, it should be checked for leaks. Once it is determined that there are no leaks, the inlet valve can be fully opened.
9. For Models with lamps packed separately, install lamp following the steps in **“LAMP INSTALLATION OR REPLACEMENT”** section.

▲ CAUTION: Lamp and quartz sleeve are easily damaged. Exercise care when installing lamp.

10. Once the plumbing hook ups are made, it is a good practice to disinfect the “downstream” plumbing between the purifier and point of use. This is done by introducing chlorine into the purifier chamber, a 100-ppm of chlorine is suggested. With the chlorine in the purifier chamber, turn the ultraviolet purifier on. Open the “downstream” outlet until a chlorine odor is noticed. Close the outlet and allow the chlorine to remain in the plumbing for three (3) hours. Flush the plumbing with ultraviolet purified water; allow the water to run for several minutes before use. This will allow the ultraviolet lamp to reach its full germicidal output.

DIMENSIONAL DATA

Figure 7 - INFINITY™ Dimensional Drawing

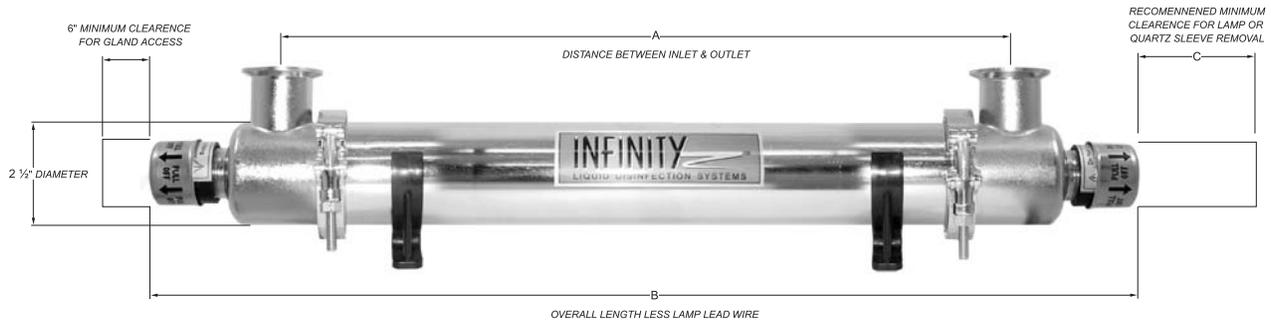


Table 6 - INFINITY™ Dimensional Data

Model:	A	B	C
1N3125	6 9/16"	13"	12 1/8"
1N5825	12 9/16"	19"	18 1/8"
1N8525	18 9/16"	25"	24 1/8"
1N11225	24 9/16"	31"	30 1/8"
1N13825	30 9/16"	37"	36 1/8"
1N19325	42 9/16"	49"	48 1/8"
1N25025	58 9/16"	65"	64 1/8"

MAINTENANCE

The water purifier is designed to operate with a minimal amount of maintenance, providing the water quality does not exceed maximum concentration levels, see “**Water Quality**” in the “**Product Application**” section. Ordinary maintenance consists of;

- Lamp replacement is recommended every 10,000 hours of operation, approximately 12 months of continuous service.
- Cleaning of the quartz sleeve, when conditions warrant.
- Always disconnect the water supply and completely drain the water purifier if it will be subjected to temperatures below freezing, for extended periods of time.

INSPECTION

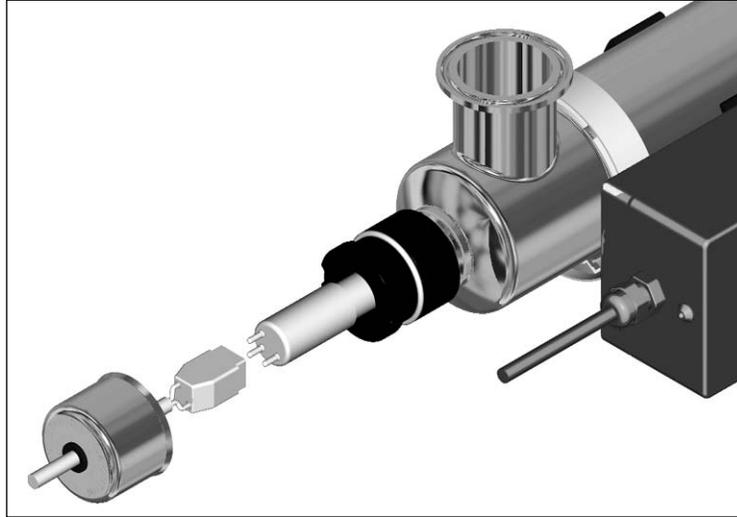
1. Regularly inspect the water purifier to ensure that the germicidal lamp is still in operation.
 - An LED indicator light, located on the ballast, provides visual indication of germicidal lamp operation. This provides an indication of lamp operation and does not indicate the level of ultraviolet intensity or transmission through the water.
2. To ensure proper operation of the water purifier, regular biological testing should be performed on a schedule recommended by local public health authorities, or at minimum; at installation, quarterly for the first year of service and annually, at lamp replacement, for the life of the water purifier.

APPLIANCE LEAKAGE CURRENT INTERRUPTER (ALCI) TESTING

1. The Appliance Leakage Current Interrupter (ALCI) is an integral part of the **Fire Shield™ with Shockshield™** power cord and is built into the plug head of the power cord.

LAMP INSTALLATION OR REPLACEMENT

Figure 2 - Lamp Replacement



1. **Disconnect power to water purifier.**
2. Remove easy-off end cap by pulling cap off static gland nut.
3. Carefully withdraw lamp approximately 2" from chamber.
4. While holding lamp end, carefully remove lamp socket from exposed lamp end.
5. Carefully withdraw lamp from chamber. Be sure to withdraw lamp straight out without angling until completely clear of quartz sleeve.

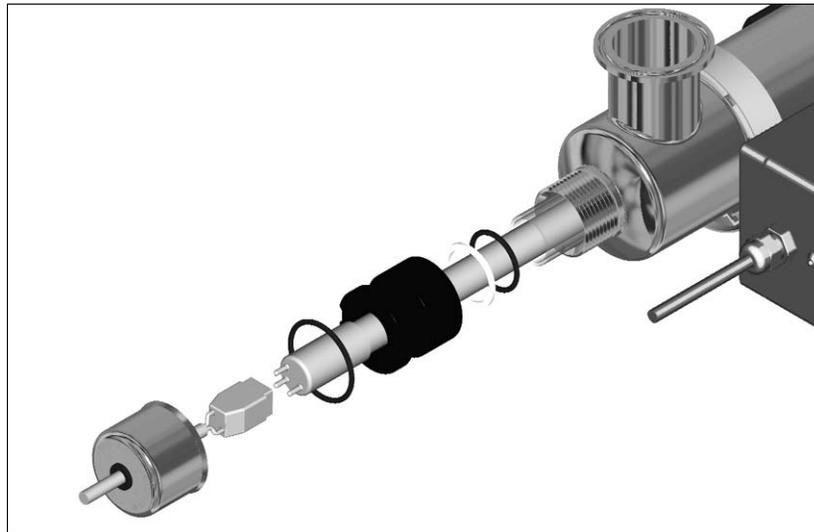
▲ CAUTION: Lamp and quartz sleeve are easily damaged. Exercise care when removing or replacing lamp.

6. Reinstall lamp in reverse order.

▲ WARNING: Germicidal ultraviolet rays are harmful to eyes and skin. Do not restore power to water purifier until lamp and both easy-off end caps have been properly reinstalled.

QUARTZ SLEEVE CLEANING OR REPLACEMENT

Figure 3 - Quartz Sleeve Cleaning or Replacement



1. Disconnect and remove power to water purifier.
2. Shut off water supply to the system, by closing the main supply valve. Drain system.
3. Remove easy-off end cap by pulling cap off static gland nut.
4. Carefully withdraw lamp approximately 2" from chamber.
5. While holding lamp end, carefully remove lamp socket from exposed lamp end.
6. Carefully withdraw lamp from chamber. Be sure to withdraw lamp straight out without angling until completely clear of quartz sleeve.

▲ CAUTION: Lamp and quartz sleeve are easily damaged. Exercise care when removing or replacing lamp.

7. Unscrew static gland nuts from each end of the chamber. Avoid striking quartz sleeve with static gland nut. Then carefully remove Teflon washer and o-ring from both ends of quartz sleeve. Teflon washer will sometimes remain within the static gland nut. If so, remove Teflon washer from static gland nut before proceeding.
8. Carefully remove quartz sleeve from chamber. **NOTE:** It is advisable to support the quartz sleeve on the backside with your finger so that it does not drop to the bottom of the chamber as it slides into the chamber.
9. Once the quartz sleeve is removed, clean with alcohol or a detergent. Stubborn stains usually can be removed with a dilute hydrochloric acid. **NOTE:** Follow all manufacturer's instructions and precautions when handling chemicals.
10. Reassemble in reverse order. Make sure the quartz sleeve protrudes an equal distance past each threaded nipple. Be sure O-rings are placed on quartz sleeve before Teflon washer.
11. Tighten static gland nuts firmly by hand only, **DO NOT USE HAND TOOLS.** Tightening with hand tools is likely to cause quartz sleeve to break.
12. Slowly open the main supply valve, and allow the system to fill with water. Check the water purifier for leaks.
13. If no leaks occur, reinstall the germicidal lamp by reversing steps 3 through 6. Restore power to the system.

▲ WARNING: Germicidal ultraviolet rays are harmful to eyes and skin. Do not restore power to water purifier until lamp and both easy-off end caps have been properly reinstalled.

REPLACEMENT OF BROKEN QUARTZ SLEEVE

▲ CAUTION: Broken Quartz is SHARP. It is recommended that protective goggles and gloves are worn when handling broken quartz sleeves.

1. Disconnect and remove power to water purifier.
2. Shut off water supply to the system, by closing the main supply valve. Drain system.
3. Remove easy-off end cap by pulling cap off static gland nut.
4. Carefully withdraw lamp approximately 2" from chamber.
5. While holding lamp end, carefully remove lamp socket from exposed lamp end.
6. Carefully withdraw lamp from chamber. Be sure to withdraw lamp straight out without angling until completely clear of quartz sleeve.

▲ CAUTION: Lamp and quartz sleeve are easily damaged. Exercise care when removing or replacing lamp.

7. Remove the water purifier from the system-mounting bracket. Grasp the purifier chamber, and firmly pull each end free from the chamber brackets.

▲ CAUTION: Considerable force maybe required to pull purifier from the chamber brackets.

Exercise extreme care when removing purifier.

8. Unscrew static gland nuts from each end of the chamber. Avoid striking quartz sleeve with static gland nut. Then carefully remove Teflon washer and o-ring from both ends of quartz sleeve. Teflon washer will some times remain within the static gland nut. If so, remove Teflon washer from static gland nut before proceeding.
9. Carefully remove as much of the broken quartz sleeve as possible, from each end of the chamber.
10. Remove chamber head clamp, by using a 7/16" wrench to loosen and remove the ¼" nut from the head clamp.
11. Remove chamber head from the chamber.
12. Any broken pieces of the quartz sleeve can now be removed through the open end of the purifier chamber. Flush water through chamber being careful to remove all quartz fragments from the interior of the chamber. Carefully discard all pieces of the broken quartz sleeve.
13. Inspect the large O-ring used to seal the chamber and the chamber head. Make sure the O-ring is seated properly between the chamber head ring and the flare of the chamber head.
14. To reinstall the chamber head, push chamber head flange into the chamber until both flared ends, of the chamber and the head, mate against the O-ring.
15. Replace the head clamp around the flared ends of the head and chamber. Install the ¼" nut and tighten, using a 7/16" wrench, until approximately 7/8" to 1" of the bolt protrudes past the nut.
16. Carefully insert quartz sleeve into chamber. NOTE: It is advisable to support the quartz sleeve with your finger to guide it through the opening in the threaded gland fitting. Center the quartz sleeve in the chamber, making sure the quartz sleeve protrudes an equal distance past each threaded gland fitting.
17. Reinstall O-rings, Teflon washers, and static gland nuts. Be sure O-rings are placed on quartz sleeve before Teflon washer. Tighten static gland nuts firmly by hand only, DO NOT USE HAND TOOLS. Tightening with hand tools is likely to cause quartz sleeve to break.
18. Slowly open the main supply valve, and allow the system to fill with water. Check the water purifier for leaks.
19. If no leaks occur, reinstall the germicidal lamp by reversing steps 3 through 6. Restore power to the system.

▲ WARNING: Germicidal ultraviolet rays are harmful to eyes and skin. Do not restore power to water purifier until lamp and both easy-off end caps have been properly reinstalled.

TROUBLESHOOTING

▲ CAUTION: Always disconnect power to the water purifier, before performing any service.
IMPORTANT: This unit is to be serviced **ONLY** by qualified, and appropriately licensed, personnel.

Table 2 - Troubleshooting

Problem	Possible Cause	Corrective Action
Purifier not operating.	No electrical power...	Verify that the purifier is connected to a live power source.
Water leaking into/from purifier.	Cracked or broken quartz sleeve...	Shut down purifier, drain, and replace quartz sleeve. See “ Quartz Sleeve Cleaning or Replacement ” in the “ Maintenance ” section.
	Quartz sleeve sealing o-ring (s) worn, damaged...	Shut down purifier, drain, and remove static gland nut, replace sealing o-ring. See “ Quartz Sleeve Cleaning or Replacement ” in the “ Maintenance ” section.
	Poor, or loose, connections or fittings...	Tighten suspect connection or fitting; or shut down purifier, drain, and remove fitting or connection. Clean threads; reapply thread sealing tape and reinstall.
Poor purifier performance	Quartz sleeve fouled...	Clean quartz sleeve, see “ Quartz Sleeve Cleaning or Replacement ” in the “ Maintenance ” section.
	Germicidal lamp output depreciating...	Replace lamp, as it nears its end of life (EOL). See “ Lamp Replacement ” in the “ Maintenance ” section.
	Germicidal lamp not functioning...	Replace lamp. See “ Lamp Replacement ” in the “ Maintenance ” section.
	Low input voltage...	Verify input voltage to purifier.
	Change in water quality...	Have water tested to confirm that it does not exceed maximum recommended concentration levels for use with this purifier.

REPLACEMENT PARTS

INFINITY™ Models

Figure 5 – Exploded View

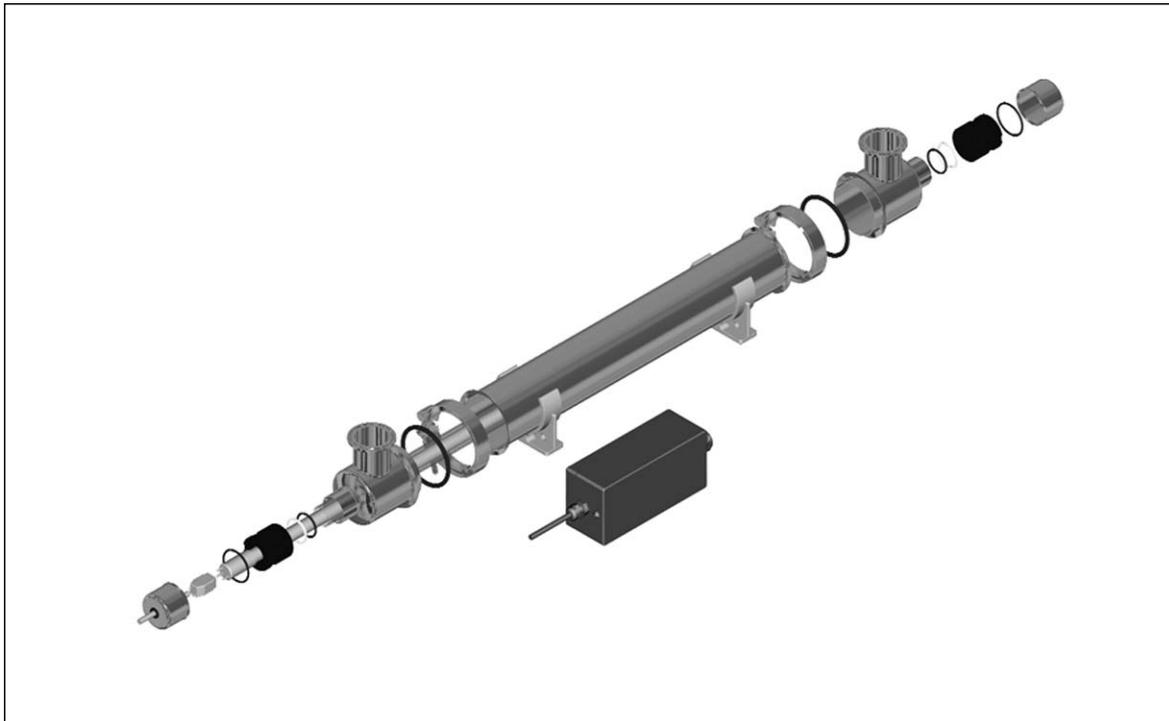


Table 4 - Replacement Parts

ITEM NO.	DESCRIPTION	QTY.	MODEL IN11225
1	Pull-Off End Cap	2	25-1493A
2	Static Gland Nut	2	25-1492D
3	O-Ring Stactic Gland Nut	2	00-1108B
4	Chamber Head	2	25-6025A
5	Chamber Clamp	2	25-6009
6	Chamber O-Ring	2	00-0250A
7	Chamber Tube	1	25-6043A4
8	Quartz Sleeve	1	15-1702A4
9	Lamp	1	05-0090
10	O-Rings (Q/S)	2	00-1023A
11	Teflon Washer (Q/S)	2	25-3023A
12	Ballast 120 Volt	1	10-0072
	Ballast 220 Volt	1	10-0071
13	Mounting Brackets	1	27-0045

WARRANTY

We warrant that this product will be free from defects in material and workmanship for a period of one year from the date of shipment thereof or the product's total rated life, whichever first occurs. Within the warranty period we shall repair or replace such products, which are returned to us with shipping charges prepaid, and which are determined by us to be defective. This warranty will not apply to any product, which has been subjected to misuse, negligence, or accident; or misapplied; or modified; or repaired by unauthorized persons; or improperly installed.

The Buyer shall inspect the product promptly after receipt and shall notify us at our main office in writing of claims, including claims of breach of warranty, within thirty (30) days after the Buyer discovers or should have discovered the facts upon which the claim is based. Failure of the Buyer to give written notice of a claim within the time period shall be deemed to be a waiver of such claim.

The provisions of the above warranty are our sole obligation and exclude all other remedies or warranties, expressed or implied, including warranties of merchantability and fitness for a particular purpose, whether or not purposes or specifications are described herein. We further disclaim any responsibility whatsoever to the customer, or to any person, for injury to person, damage to, or loss of property or value caused by any product which has been subjected to misuse, negligence, accident; or modified or repaired by unauthorized persons; or improperly installed.

Under no circumstances shall the Company be liable for any incidental, consequential or special damages, losses or expenses arising from the contract for this product, or in connection with the use of, or inability to use, our product for any other purpose whatsoever.