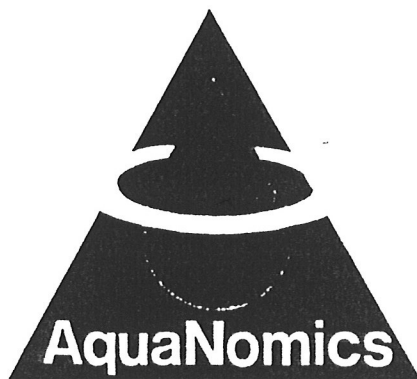


DVS Vandteknik A/S

Jørgensmindevej 1 . DK-4200 Slagelse . Tlf.: 53 54 42 23 . Fax: 53 54 42 74 . Giro 964-9085



AquaNomics Danmark



INSTALLATION & MAINTENANCE INSTRUCTIONS

ULTRAVIOLET - OZONE WATER STERILIZER

MODEL C-3-S/AOZ 1-2

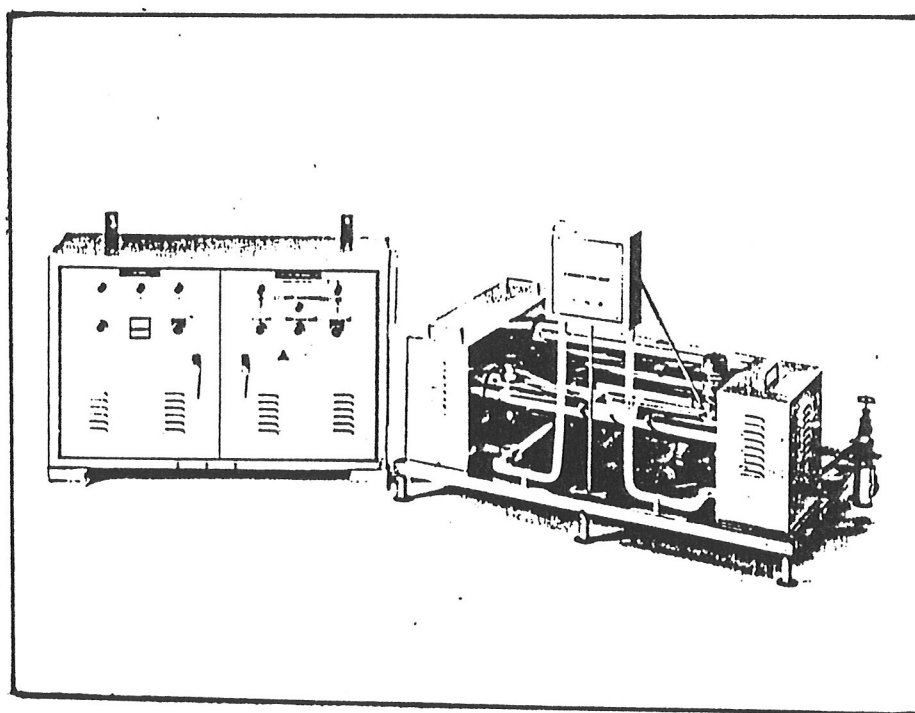


Table of Content

<u>Item</u>	<u>Description</u>	<u>Page</u>
A.	Location	1
B.	Operating Pressure	1
C.	Piping	1
D.	The UVR/O ₃ Sterilizer - Illustration Diagram	2
E.	UV/Ozone Lamp	3
F.	Operation Procedures	6
G.	Specification	7
H.	Maintenance	7

General

A. Location

Install the sterilizer out of the direct sun light and where there is ample ventilation. Make sure there is a 36 inches clearance at one end so that lamps and quartz sleeves can be removed for cleaning. To avoid recontamination by pipes or fittings at the downstream of the unit, locate unit as close to the point of use as physical limitations permit. Mount the sterilizer on sturdy base or other suitable support so as to avoid undue strain on the unit or pipe fittings, if necessary, use bell reducers to bush to your pipe size. In making plumbing connections, provide unions, valves, bypass and drain, where appropriate.

B. Operating Pressure

U. V. Chamber

The max operation pressure through the U. V. Chambers should be 7 bar. Higher pressure may result in water leakage through the O-rings of the quartz sleeve.

Ozone Chamber

The compressed air, normally generated by an air compressor, should have a pressure at air inlet of the Ozone Chamber not less than the hydraulic pressure inside the U. V. Chamber.

C. Piping

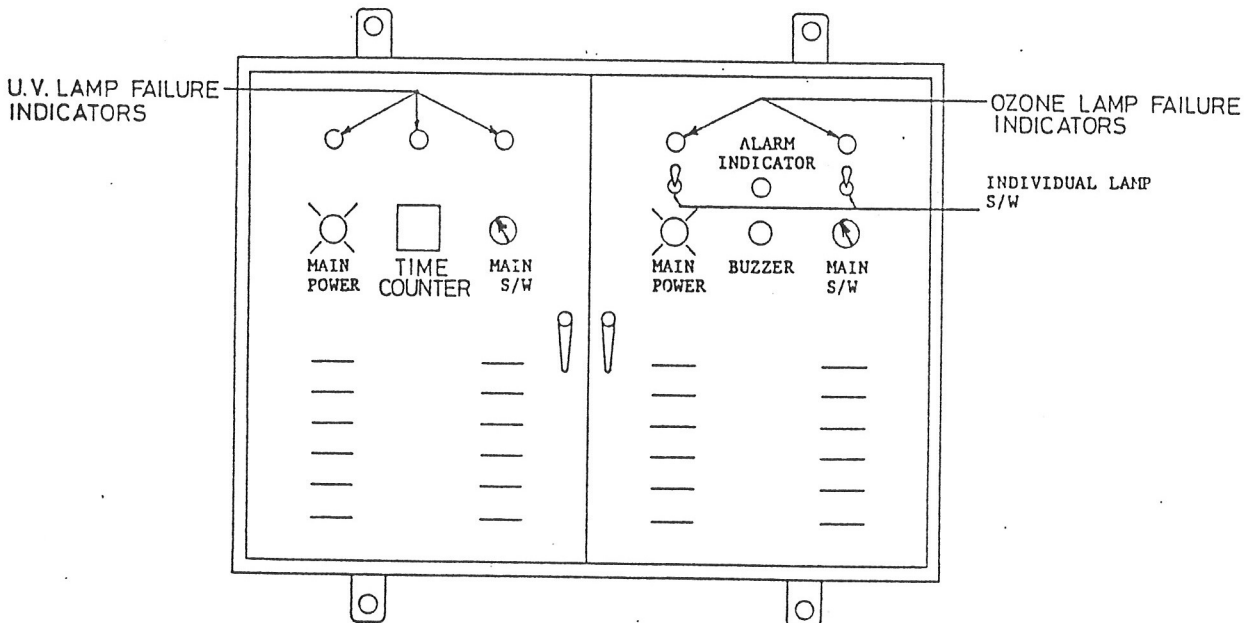
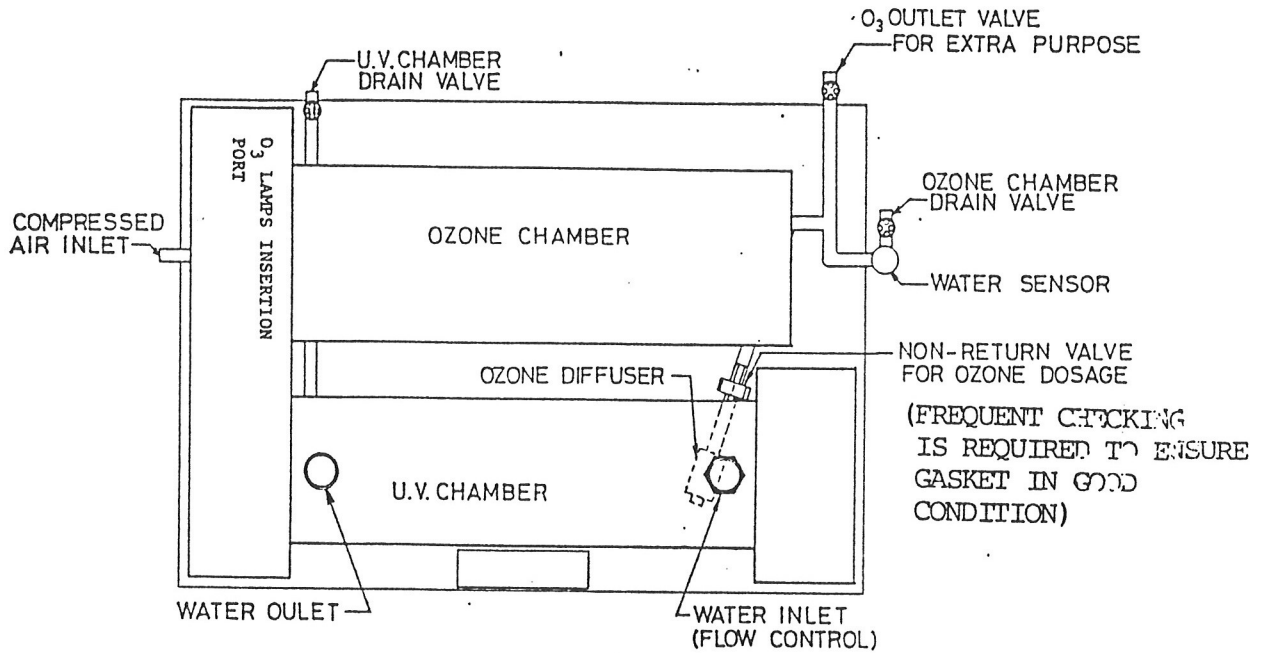
If your piping system is subject to impulse pressure resulting in "WATER HAMMER", a surge tank or other means must be provided to remove this condition. Otherwise the extreme momentary pressure may rupture the quartz sleeves.

As the compressed air is injected into the unit, vibration will occur. We recommend that two quality flexible joints are to be installed on water inlet and outlet of the unit for preventing rupture of system pipeworks.

When connecting the extra ozone outlet, directional check valve should be installed at water tank ozone inlet to prevent back flow of water into ozone chamber.

D. The UVR/O₃ Sterilizer - Illustration Diagram

An illustration drawing of the unit is shown below.



E. UV/Ozone Lamp

1. General

The lamps used in the unit are high efficiency 'AquaNomics' Ozone Generating and Ultraviolet Lamps. All of these have a normal rated life expectancy of 8,000 hrs. The lamps, normally, do not burn out during the life span. However, beyond that period of time, the efficiency of the lamps will deteriorate and thus should be replaced.

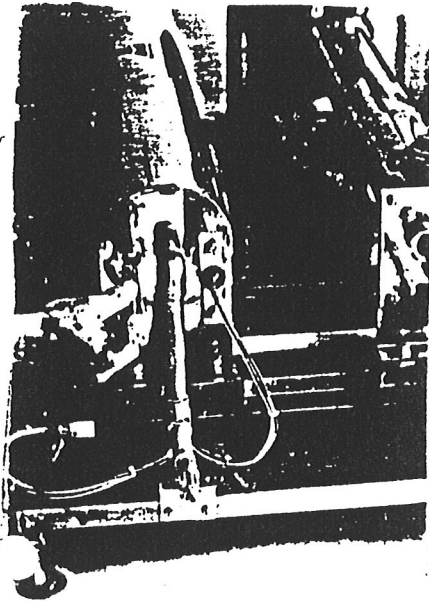
2. Ozone Lamps Installation

Stop compressed air from entering into the Ozone Chamber and isolate the power supply. Unscrew and remove the Ozone insertion port cover.

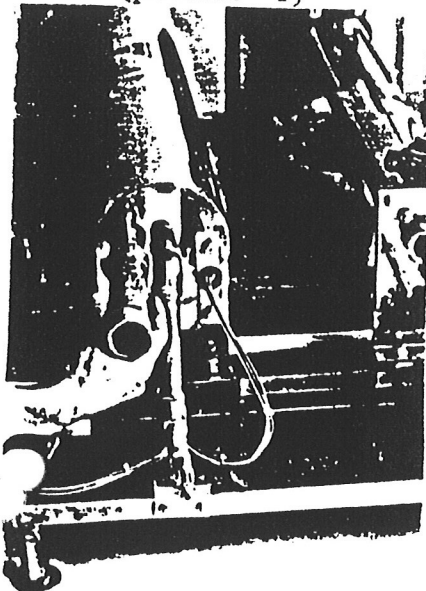
Great care should be taken to avoid bending of the U.V. lamps. Smoothly and carefully insert the lamp into the Chamber (see picture 1), an insertion guide ring is installed inside the Ozone Chamber for each Ozone lamp to ensure smooth insertion.

Apply the 'O' ring around the lamp. Then use the supplied lock nut to fasten the lamp to its position. Firmly hand tighten the nut with the special wrench supplied (see picture 2).

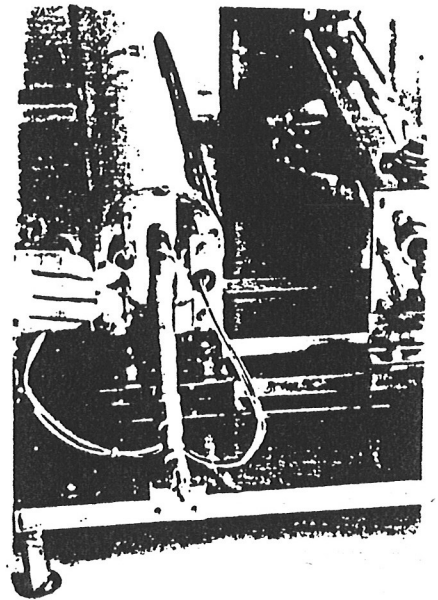
A purpose made four pins power supply socket is hence plugged in (see picture 3) whereas its position is then fixed by tightening the small steel plate with the two numbers tight rods (see picture 4).



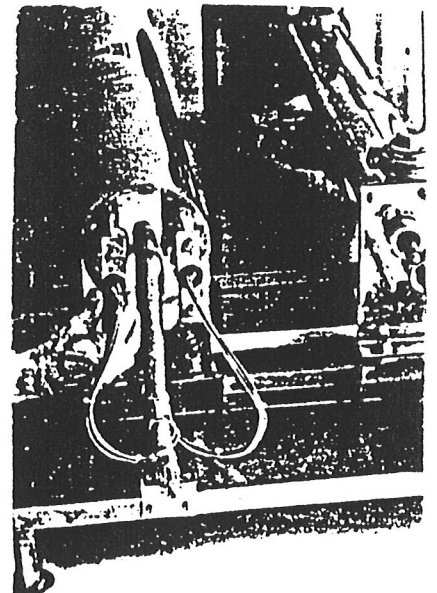
(picture 1)



(picture 2)



(picture 3)



(picture 4)

3. U. V. Lamp Installation

After plumbing connections have been completed, remove stainless steel end covers on both sides of U.V. cylinders. Then take out the plastic lamp socket plates, unscrew the packing nuts with O-ring from cylinder end nipples. In making sure that holes in the baffle plates inside the cylinders are lined up, smoothly insert the quartz sleeves through the stainless steel nipples.

Ensure that each quartz sleeve emerges the same length on both sides of the cylinders. Form a compression seal around each end of the sleeves with the elastomeric O-ring. The O-ring band the chamfered seat of packing nuts should be lubricated with vaseline so that no torque is created on the quartz sleeve. Then by the special wrench provided, secure the packing nuts gently. Do not use necessary great force, this can cause rupture of the quartz sleeve.

Caution : Over tightening of these nuts would cause rupture of quartz sleeves.

Insert the lamps through the quartz sleeves and engage the ends in the plastic holder. Make sure all the threaded ends of the lamps emerge the same length on both sides of the cylinder. Engage the plastic lamp holder towards the lamp ends tightly. Then screw up the ends securely the special lamp contactors enclosed.

Finally, make sure that the cable lugs are tightened. Now turn on the switch and check to see that all lamps are operating. If one or more are out, it is usually due to an improper contact. After replacing the end covers, the sterilizer is ready for operation.

Please note that the lamps should have about a 2 minute warm-up period. Do not operate the sterilizer for more than a 15 minute period without having liquid in it to carry away the heat generated by the lamps.

IMPORTANT: Do not look at lighted lamps with naked eyes, use proper suncreening glasses for protection.

The quartz sleeves of the ultraviolet sterilizer have to be taken out and cleaned at periodic intervals; the frequency of cleaning is dependent entirely upon the volume of liquid that has gone through the unit.

If substantial mineral deposits are observed to build up on the outside surface of the sleeves, the efficiency of the sterilizer will be materially reduced. We recommend a regular schedule of cleaning of the sleeves. If after several months, the sleeves are noticeably dirty, the cleaning frequency should be increased. To clean the sleeves, wipe off with aqueous ammonia solution. If the sleeves are very dirty, an abrasive cleaning agent may be used. When sleeves are being cleaned, the lamps should also be wiped off with a clean cloth before it has been installed back to the unit.

The ability of the sterilizer to do a good job of disinfecting your liquid at its rated capacity is dependent upon the liquid being clear and free of any visible particles in suspension. If the liquid is not absolutely clear, a good filter is recommended ahead of the sterilizer.

F. Operation Procedures

To start up the unit, follow the procedures as below :

1. Switch on the U. V. Sterilizer with water flowing through.
2. Switch on Ozone Generator with pressurized dry and oil free air coming into the U. V. Chambers.

To shut down the unit, follow the procedures as below :

1. Switch off the Ozone Generator but let the pressurized air blowing through the unit for approximately ten minutes for removal of residual Ozone inside the chamber.
2. Switch off the U. V. Sterilizer.

Remarks

1. A floatless level control sensor is installed to monitor the level of water condensate inside the Ozone Chamber. The buzzer will sound and the red indicator will light up when the water level rises to the pre-set level. In that case switch off the Ozone Generator, open the drain valve nearby. After the draining of the water, the buzzer will become silent and the red-indicator will be off. Then switch on the Ozone Generator again.

The condensate is due to the possible moisture content of the incoming air and this could be avoid if suitable air dryer is installed for the compressed air system.

2. The drain valves for the U. V. Chambers are installed for maintenance purposes only, which normally, should be kept close.
3. Valve seat of the non-return valve should be frequently checked to ensure operations in good conditions.
4. For disinfection of your pipe line, it requires dosage of sodium hypochlorite mixed with water from the sterilizing unit to the point of use. Retain solution in the pipe system for a period of approx. 30 minutes. Then start the sterilizer and flush with sterilized water to remove the sodium hypochlorite solution.

G. Specification

Model	C-3-S/AOZ 1-2
Compressed Air Inlet Nominal Size	15mm
Water Inlet/Outlet Nominal Size	40mm
Type of Water End Construction	BSP Thread
Rated Capacity	95 l/min - 118 l/min
Power Consumption	450W
Electricity Characteristic	220V/50Hz/1ph
Min. Operating Pressure	1 bar hydraulic/3 bar air
Max. Operating Pressure	7 bar hydraulic/5 bar air
Ozone Output at 20°C, 1 Bar Oilfree Dry Compressed Air Free Air Delivery = 1 l/s	15 gram/hr.

H. Maintenance

Maintenance of the sterilizer is one of the most important factors in keeping the sterilizer in the best condition.

Item \ Schedule	Every Day	Every 3-6 months	Every 12 months	Every 3 years
U. V. Lamps & Ozone Lamps Replacement			0	
Quartz Sleeve Cleaning		0 (if necessary)		
Quartz Sleeve Replacement				0
Non-return Valve Checking		0		

Remarks

The useful life of U. V. & O₃ Lamps is governed by the life of the electrodes and the life of the quartz tube. Electrodes life will be shortened by frequent starting. Each time the lamp is switched on tiny particles of the electrodes are bombarded onto the walls of the tube. As the lamp burns the quartz tube gradually becomes solarized and its ability to transmit ultraviolet radiation is lessened.