

HYDROXZONE OZONE GENERATOR

Owner's Manual



Australian Approval number: 13041001/00



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GENERAL SAFETY RULES

1. The equipment mentioned in this manual is specially designed for the sanitisation of water in swimming pools.
2. It is designed to work with clean water at a temperature not exceeding 60°C (140°F).
3. The installation should be carried out in accordance to the safety instructions of swimming pools especially Standard HD 384.7.702 and the specific instructions for each facility.
4. The rules enforced on accident prevention should be carefully followed.
5. Any modification of the system requires the prior consent of the manufacturer.
6. Original replacement parts and accessories authorised by the manufacturer ensure a high level of safety.
7. The manufacturer accepts no liability for the damage and injuries caused by unauthorised replacement parts and accessories.
8. During operation, some parts of the components are subject to dangerous electric voltage. Work may only be performed on the components or on the equipment connected to it after disconnecting them and the starting device from the mains power.
9. The user should make sure that assembly and maintenance tasks are carried out by qualified authorised persons and that these persons have first carefully read the Service and Installation Instructions.
10. The operating safety of the components of the system is only guaranteed if the Installation and Service instructions are correctly followed.
11. The limit values stated in the Technical Specifications should not be exceeded under any circumstance.
12. In the event of defective operation or fault, contact the manufacturer's Technical Support Department or its nearest Authorised Agent.
13. If any of the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person.
14. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety

IMPORTANT SAFETY INSTRUCTIONS

Read and Follow All Safety Instructions

Read and be familiar with this manual before installing or operating your new Hydroxzone ozone generator.

- Voltage must be determined before unit is installed.
- Do not bury cord.
- Connect only to a properly grounded, grounding type receptacle.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- This appliance is to be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30 mA.
- The equipment must be installed outdoor, but must be undercover to avoid exposure to rain
- The mounting position - The unit must be mounted in a horizontal position. See installation guide for photo of position (Figure 2.1)
- Install at least 1.5m from the inside wall of the pool using non-metallic plumbing. The ozone generator is to be located 600mm above the maximum water level to prevent water from contacting electrical equipment. Install to provide drainage of compartment for electrical components.
- Wear safety glasses when drilling and tapping holes for installation of unit.

SAVE THESE INSTRUCTIONS



- Short term inhalation of high concentrations of ozone and long term inhalation of low concentrations of ozone can cause serious harmful physiological effects.
- Do not inhale ozone gas produced by this device.
- Disconnect all power to pool equipment prior to installation, maintenance, or removal of the Hydroxzone ozone Generator.
- To avoid risk of electric shock, fire, or injury, service should only be performed by a qualified pool service professional.
- Installation must be performed in accordance with the National Electric Code and any applicable local or state installation codes.



NOTE: The instructions in this document provide general installation guides. Consult your dealer for specific installation instructions. Check system for any visible shipping damage. If damage has occurred, contact the delivery company and your dealer immediately. Before beginning installation, please verify that all listed parts are on hand.

WHAT IN THE BOX

- 1 Hydroxzone ozone generator
- 1 Dynamic Venturi Injector
- 1 Installation kit

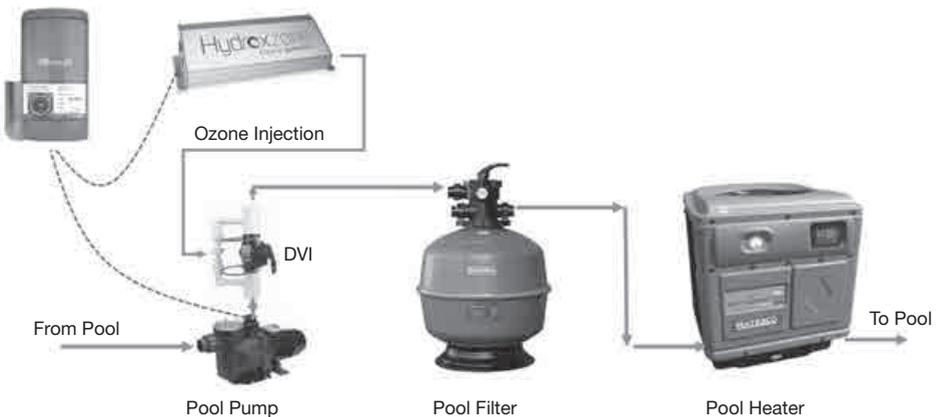
1. HYDROXZONE OZONE GENERATOR

1.1 INTRODUCTION TO OZONE

The Hydroxzone ozone generator system produces ozone when air is drawn across a special high-energy vacuum ultraviolet (VUV) lamp, converting some air to ozone and hydroxyl radicals. A Dynamic Venturi Injector (DVI) is inserted on the return line, by-passing through a venturi, which creates suction that draws the ozone/hydroxyl radicals into the water flow, mixing the bubbles as the water returns to the pool.

Note: The Hydroxzone ozone generator must only operate when the filtration pump is in operation.

Ozone acts primarily as an oxidiser in the pool environment. In a typical chlorinated pool, up to 90 percent of the pool's chlorine may be used up in reactions unrelated to disinfection. The by-products of these reactions are combined chlorines. Combined chlorine is the cause of eye irritation, odour and the other unpleasant side effects of chlorination. When the ozone/hydroxyl radical is used, they oxidise a large portion of the contaminants, which results in the formation of combined chlorine. The result is that more chlorine is available for disinfection and less chlorine is required to maintain the pool. Ozone provides some disinfection, but ozone residual cannot be established, so the use of a primary sanitiser [chlorine, bromine, hydrogen peroxide] is always recommended.



1.1 Typical Installation of Hydroxzone



Connection of the Hydroxzone unit to a salt water chlorinator.

i **NOTE:** Hydroxzone must be used in combination with an approved/registered sanitiser.

1.2 THE DYNAMIC VENTURI INJECTOR (DVI)

Hydroxzone ozone generator uses a Dynamic Venturi Injector that enhances the transfer of ozone to the water. The injector is specially designed to minimise the pressure drop across the system.

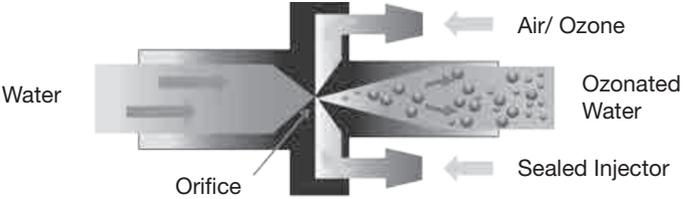


Figure 1.2 How the injector works

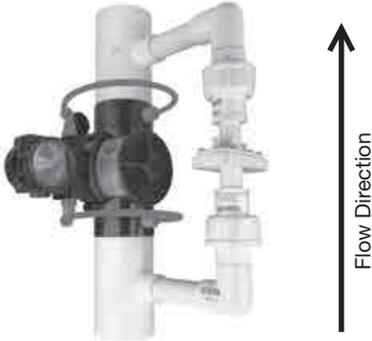


Figure 1.3 Dynamic Venturi Injector (DVI).

2. INSTALLATION

NOTE: The minimum recommended vacuum at the inlet of the DVI is 3 L/min. The vacuum can be measured by using a vacuum meter (Waterco's P/N 72522813).

Multi-speed pumps can alter the water flow rate through the pool system. Adjusting the speed of a multispeed pump will affect the water flow and the vacuum through the Venturi Injector.

When making any adjustments to the speed of the multi-speed pump, make sure there is a minimum vacuum of 3L/min through the DVI.

All pools are different. Depending on the hydraulic resistance in the pool system, running a multi-speed pump on low speed may not create enough vacuum. If this is the case, the pump speed will need to be increased until the minimum required vacuum is reached.

2.1 PREPARING FOR INSTALLATION

- I. Check for and correct all leaks in plumbing.
- II. Balance the pool water
- III. Backwash the filter on retrofit installation.
- IV. Shock the pool. Hydroxzone must be used in combination with an approved/registered sanitiser
- V. Turn pump OFF.
- VI. Locate section of plumbing where the DVI needs to be located.
- VII. Venturi Injector must be installed before the filter **(1)** and any other additional equipment installed in line (e.g. heater or solar)
- VIII. The unit must be mounted out of direct contact with the weather.
- IX. Hydroxzone must be mounted on a wall in a horizontal orientation as shown below.



Figure 2.1 Hydroxzone Mounting Position

(1) Hydroxzone ozonator's may be installed prior to a Waterco filter. Non-Waterco filters may require the ozonator to be installed after the filter, otherwise the warranty of the filter may be void. Please consult with your filter's manufacturer about filter resistance to ozone before installing the equipment.

2.2 RECOMMENDED WATER CHEMISTRY (WATER BALANCE)

Consult the local pool professional for the correct water balance according to the swimming pool type.

PARAMETER	SUGGESTED VALUE
pH	7.2-7.6
Total Alkalinity	60-200 ppm
Calcium Hardness	100 -500 ppm
Stabiliser (Sunscreen)	30-60 ppm
Phosphates	<0.2 ppm

2.3 INSTALL THE DYNAMIC INJECTOR VENTURI (DVI)

The DVI should be installed as the last equipment in the return line in a way that enables easy access to the adjustment valve, and so the Dynamic Venturi is not exposed to potential physical hazards.



Figure 2.2. and 2.3 Dynamic Venturi Injector front and lateral views

2.4 INSTALL HYDROXZONE SUPPLY TUBE

- 2.4.1. The Hydroxzone unit is supplied with sufficient braided supply tube which may be cut to length. Ensure sufficient slack in the supply tube. Do not extend the length of the braided supply tube.
- 2.4.2. Connect the polybraid hose to the barb on the side of the Hydroxzone (see Figure 2.4).

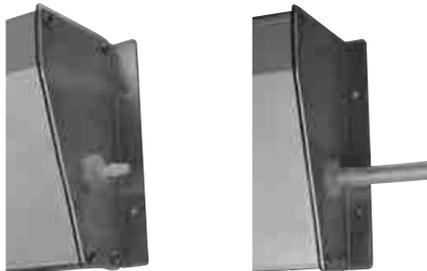


Figure 2.4 Connecting polybraid hose to Hydroxzone

- 2.4.3 Install the Hydroxzone unit with two (2) check valves and a drain as follow (refer to Figure 2.5).

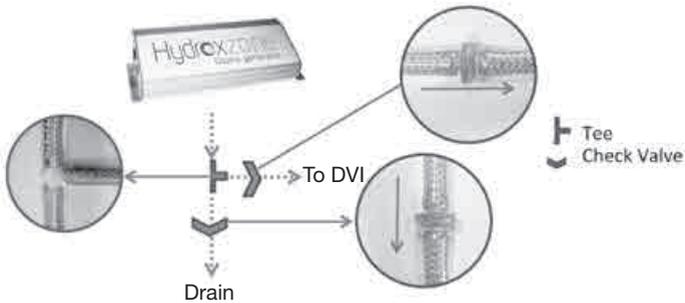
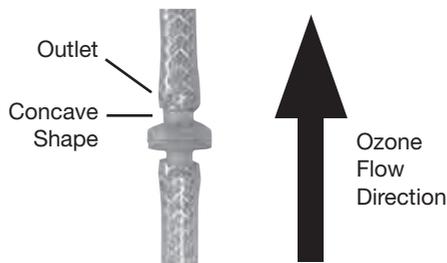


Figure 2.5 Check valves and drain setup.

- I. Cut the braided supply tube a minimum of 600mm from the Hydroxzone unit.
- II. Install the 'T' supplied in the installation kit between the 2 sections of supply tube, with one end of the 'T' vacant and pointing to the ground.
- III. Cut the braided supply line approximately 200mm further on the Dynamic Venturi Injector side of the 'T' piece, and install a check valve with the concave shape facing the direction of the Dynamic Venturi Injector ensuring the flow of air from the Hydroxzone unit to the Dynamic Venturi Injector (refer to Figure 2.6).
- IV. Cut the braided line to length, ensuring a length of 200-300mm of braided supply hose is available to make a drain off the 'T'.
- V. Take the 200-300mm piece of braided supply hose and cut it in half.
- VI. Install the second check valve between the 2 pieces of cut supply hose.
- VII. Connect the 200-300mm piece of braided supply tube with check valve installed, and connect to the base of the 'T' – ensuring that the concave shape is facing toward the vacant end of tube (Figure 2.6). Ensure this drain tube is pointing to the ground. This will ensure water is able to drain from the supply tube.



2.6 Check Valve Orientation

- VIII. Connect the other end of the braided supply tube to the Dynamic Venturi Injector's open nipple.

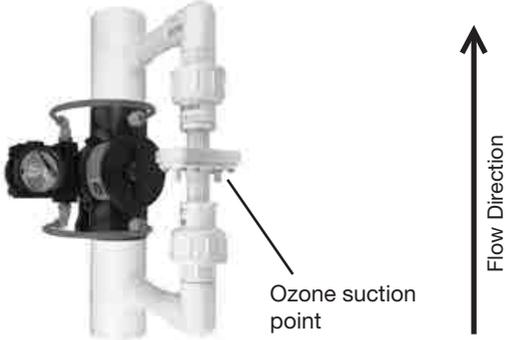


Figure 2.7 Ozone inlet point and Dynamic Venturi Injector

2.5 SETTING THE DYNAMIC VENTURI INJECTOR (DVI)

The DVI is operated by creating a pressure differential across the ozone injector. This occurs by directing flow using the valve on the front of the DVI assembly.

The DVI is provided with an indicator gauge which shows how by moving the valve, the level of 'draw' is adjusted.

The indicator is a guide only, not an accurate measurement of ozone injection.

DVI valve position	Needle position	Level of Ozone Draw
OPEN	GREEN	NIL to LOW
SET	YELLOW to RED	MID to HIGH
CLOSED	RED	HIGH

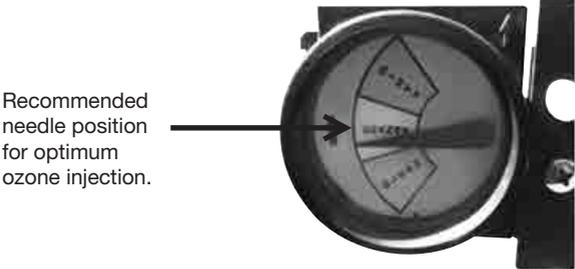


Figure 2.8 Pressure differential indicator

2.6 ELECTRICAL INSTALLATION

Hydroxzone ozone generator is designed to operate on either 120 or 240 VAC, 50/60 HZ. Connect the Hydroxzone ozone generator either to the circulation pump switch or timer. Hydroxzone ozone generator unit and circulation pump should be started simultaneously. Refer to national electrical codes or local code grounding and installation procedures for swimming pool equipment.



IMPORTANT: Hydroxzone must run when the pump is operational. Damage to unit may occur if air does not pass through the unit for prolonged periods of time.

Avoid running the ozone unit on short cycles. The useful life of the UV lamp will be reduced if stop/start operation is performed. Continuous operation of 4 to 8 hour periods per day is highly recommended.



CAUTION: Make sure the voltage is the same as prescribed on the side of the HYDROXZONE ozone generator. Over voltage will void customer warranty.

3. HYDROXZONE MAINTENANCE

Start up and shut down cycles should be kept to a minimum to extend the life of the lamp. The U/V lamp within the Hydroxzone will provide up to 80% of the maximum output for the system right up until the lamp stop working.

The Hydroxzone ozone generator is rated to last 20,000 hours of continuous operation. Start up and shut down cycles should be kept to a minimum to extend the life of the lamp. The U/V lamp within the Hydroxzone will provide up to 80% of the maximum output for the system right up until the lamp stop working.

It is recommended to replace the lamp once it has reached it maximum life. Please use the below table as reference to determine when to replace the lamp and ballast.

Daily Running (hours)	Replacement Period (years)
4	10
6	8
8	6

It is good practice to check the vacuum level on the Dynamic Venturi Injector at regular intervals to ensure there is sufficient air flow through the Hydroxzone ozone generator.

4. TROUBLESHOOTING GUIDE

PROBLEM	PROBLEM CAUSE	REMEDY
No light from Hydroxzone	Loose wiring	Check all wiring connections
	No power to unit	Check voltage compatibility Check power source
	Defective ; amp or other internal component	Return unit to dealer
No bubbles from injector or no evidence of ozone in pool	Excessive back pressure	Check for kinks or clogs in hose or plumbing
	Leak in fitting	Replace fitting
	Filter not working	Check filter
Water in Hydroxzone	Check valve failure	Verify check valve in Venturi is operating properly
Cloudy water; foamy water; scum	Water chemistry out of balance	Check readings and balance accordingly
	Total dissolved solids (TDS) level is too high	Refer to dealer for proper water testing
	Filter not working	Clean or replace filter

5. TECHNICAL SPECIFICATIONS

Power Input (volts)	120 - 277
Frequency (Hz)	50/60
Degree of Protection	IPX4
Max. Current (A)	8
Temperature Operating Range (°C)	-32 to 60
Dimension (mm)	425 x 160 x 90

6. SPARE PARTS LIST

PART NUMBER	DESCRIPTION
60137201	CHECK VALVE 1/4"
60137203	1/4" HOSE BARB TEE
60137204	PLASTIC CLIP
60137205	1/4" POLYBRAIDED HOSE
132309	DYNAMIC VENTURI INJECTOR
60137200	PZ2-7 DUAL LAMP W/BALLAST REPLACEMENT

7. WARRANTY

Component	Warranty
Hydroxzone	24 months (commercial application 12 month)
Venturi Injector	12 months
Labour	12 months

Please refer to Waterco's Warranty terms and conditions.

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