

## Ozone - the problem solver

Naturally generated by lightning, ozone produces the fresh smell associated with thunderstorms. The **Sterizone** system produces ozone electrically in the same way. Ozone is produced by changing the oxygen in the air to ozone using a 'corona' electrical discharge.

Ozone is a powerful disinfecting, deodourising and oxidising gas ( $O_3$ ) consisting of oxygen ( $O_2$ ) with an extra oxygen atom attached. Ozone enriched air is fed into the water stream where purification occurs due to the ozone giving up the extra oxygen atom, leaving oxygen in the water as the byproduct.

Ozone achieves excellent taste, colour and odour removal as well as precipitation of iron and manganese. In many applications sufficient ozone is dosed to eliminate most harmful micro-organisms.

One of the major advantages of ozone in many applications is that it completes its function by reaction, therefore no ozone is present in the treated water to affect taste or cause corrosion.

### Sterizone ozonation and filtration

This system works with an atmospheric holding tank from 2-25,000 Litres. Water is recirculated by pump through the ozone generator eductor and a filter is used to remove the resulting precipitated impurities. On some occasions, e.g. disinfection alone being required, the filter may not be necessary.

**Treats all your water**

**Automatic**

**No chemicals**

**Deodourises**

**Disinfects**

**Removes iron and manganese**

**No residue**

**Removes solids**



### Ozone Generator

The ozone generator houses the corona discharge tube, solid state high frequency power supply, run light and cooling fan. Ozone is produced when the air feed gas is exposed to a high voltage low current electric field. Units producing 2 and 5g of ozone per hour are available. The generator should be located in a clean, dry place.

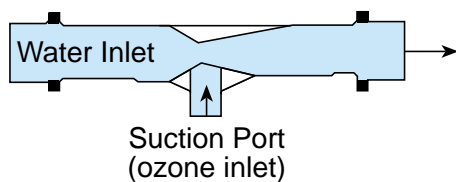
## Air Drier

In many applications damp or dusty conditions can reduce the performance of the ozonator so a drier may be recommended to pretreat the air. The 2g/hr Sterizone ST20 is designed to handle air that is less than ideal and the ozone cell can be rinsed clean. For higher outputs the ST50 is available and in conjunction with an air drier produces 5g/hr, or if oxygen fed 10g/hr.

Dissolved ozone measurements are simple to carry out, as are checks on the levels of unwanted components in the water (e.g. iron or manganese).

## Venturi injector

Ozone is introduced into the water by the venturi injector. The venturi creates a suction through the hose connecting the generator and the injector. Ozone is drawn from the generator and mixed with the water. Feed air is drawn into the generator to be converted to ozone.

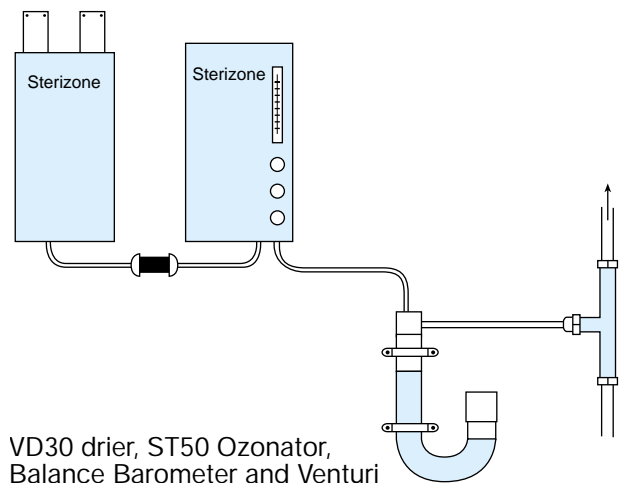


## Filtration

Ozone precipitates iron and manganese and coagulates organic matter. These suspended solids are generally removed by pressure filtration using fine sand alone or in combination with other media like anthracite. The filter is usually located downstream of the ozonation tank.

## Balance Barometer

Indicates the air flow through the ozonator and acts as a water trap preventing backflow and equipment damage, recommended for most installations.



## Domestic Water Treatment

Several problems common in private water supplies are best tackled with ozonation.

Iron and manganese are oxidised to insoluble forms that are readily removed by filtration after ozonation. Water discolouration due to natural organic matter can be reduced in similar fashion.

Tastes and smells are eliminated as the organic compounds causing them are broken down. Particulate matter and sludge deposits are frequently associated with taste and smell, and the **Sterizone filtration** removes these effectively from the tank and water supply.

Bacterial contamination at low levels is readily dealt with by the normal level of ozone. Increased dose rate and/or residence times can be used to tackle more serious problems. Giardia and Cryptosporidium cysts are killed by ozone in sufficient concentration.

Organic contaminants such as diesel, many pesticides and vinyl chloride are broken down by ozone treatment. Ozone would usually be used in conjunction with carbon filtration to tackle spray and pesticide contamination problems.

## Commercial applications of ozone

### Bottled Water

Still mineral and table waters in particular are difficult to bottle in a sterile manner. Addition of ozone prior to bottling is one of many sterilisation options offered by Contamination Control Technologies. It is particularly effective since, in addition to killing micro-organisms (bacteria, yeasts and moulds) in the water it can also act on the bottles and caps once they are filled. Residual ozone taste dissipates quickly to be undetectable to the consumer. Use of ozone is approved by the United States FDA.

### Process use

In many applications it is useful for water for process use (CIP, rinsing hoses etc) to have an ozone residual. This can minimise contamination of piping and products. Ozone can also be used as a sanitiser of surfaces, pipes or products.

### Cooling Systems

As well as controlling most micro-organisms the Sterizone system can produce significant improvements in cooling water chemistry, particularly in deposit control. Ozone eliminates slimes and algae. Filtration removes dirt, dust and precipitated iron and manganese.

Ozone does not add dissolved solids to the water, unlike chlorine, and therefore water losses can be reduced.

### Water Features

Fountains, decorative water features and other similar systems can be protected from algae and slime growth by Sterizone ozonators.

### Odour control

The ST20 can be used with a small air pump to provide a positive pressure of ozone for odour control purposes.

## Specifications

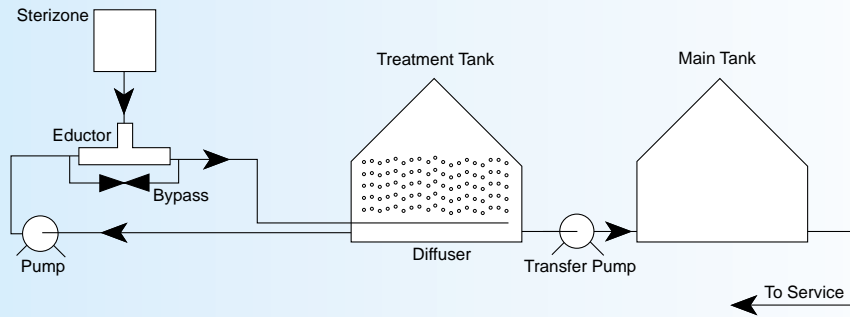
MODEL	ST20	ST50**	DRIER VD10
Ozone production g/hr	up to 2*	5	N/A
Air flow gauge	No	Standard	N/A
Power consumption (Watts)	150	150	120 (VD30-160W)
Voltage	230	230	110
Air feed (litres/Min)	8	6	6
Balance barometer	Recommended	Recommended	N/A
Cooling Fan	Standard	Standard	N/A
'Ozone on' indication	Standard	Standard	N/A
Air drier	Optional	Standard	N/A
Venturi bypass assembly	Optional	Optional	N/A
Pump size kW (typical)	0.75	0.75	N/A

\*Output will vary with the humidity of the air, the VD10 drier can be supplied with the ST20 to maximise output

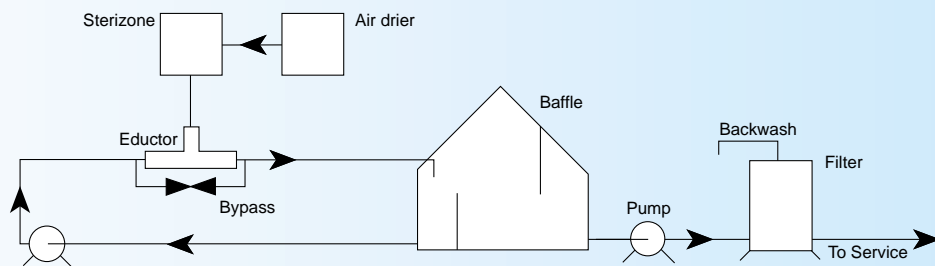
\*\*The VD10 drier is normally supplied with the ST50, the VD30 can be supplied for more arduous service or to supply two ST50 units

# BASIC TREATMENT SYSTEMS

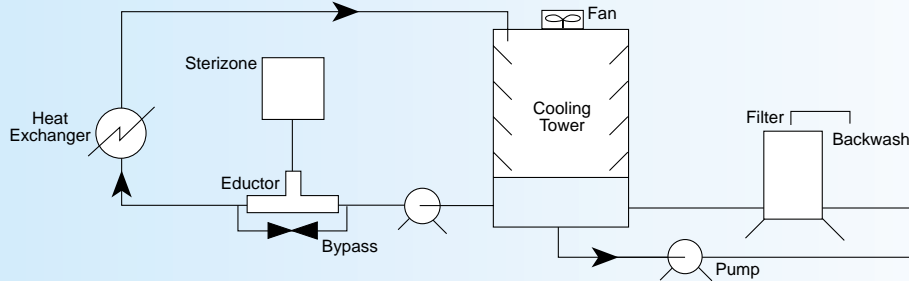
## 1. Batch Tank Disinfection



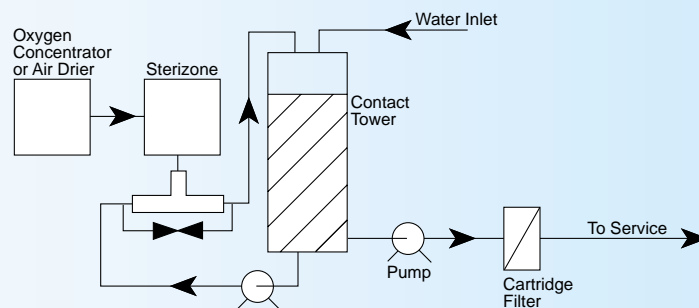
## 2. Single Tank with Filtration



## 3. Cooling Tower System



## 4. In line Dosing



**CONTAMINATION CONTROL  
TECHNOLOGIES LIMITED**

P.O.Box 14 641, Auckland, New Zealand.

Ph: 0-9-570 9135 Fax: 0-9-527 7654

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