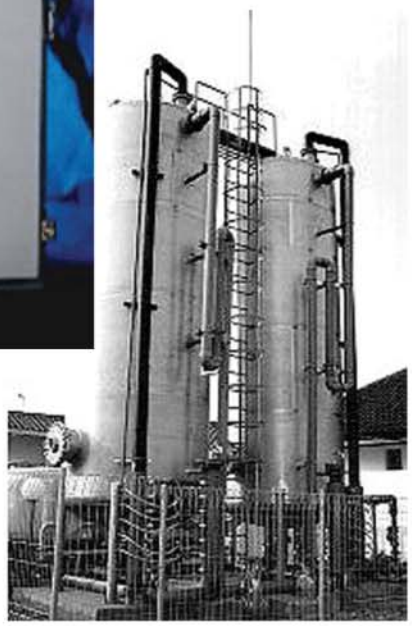
Ozopro

The Clear Solution with Ozone

Safe

Efficient

Affordable



Durpro

Providing Clear Solutions

Ozone technology has made its mark on water purification since the beginning of the century when it was first used in a town water filtration plant in France. The oxidizing power of ozone is almost twice that of chlorine and about five times that of oxygen, making it particularly effective in removing organics and in precipitating heavy metals.

OZOPRO™ ozone generators feature Corona Lamp technology to produce ozone concentrations up to 10% by mass. Diffusion methods such as porous stone, venturi and direct injection can be tailored to the process application. Systems are air-cooled and can be run on dry Air feed or Oxygen, making for some of the most economical ozonators on the market.

Oxidant	Reduction potential (V)
OH^-	2.80
O	2.42
O_3	2.07
HOCl	1.49
Cl_2	1.36
H_2O_2	0.87
O_2	0.40

Oxidizing powers of various oxidants

A number of variables affect ozone production: maximum ozone concentrations can be accomplished using pure Oxygen feed instead of dry Air. Ozone concentration in water is maximized by using advanced diffusion techniques optimizing gas-liquid contact. Alkalinity, pH, organics content and suspended solids in the water affect the effectiveness of the ozone. Pre-filtration is often used to reduce the ozone demand. In some cases, post-treatment is used to remove ozone residual and ozone by-products. Coarse filtration combined with activated carbon produce excellent results in most cases.

Durpro's engineering team can design systems to fit the specific needs of your application and has both the Expertise in water filtration and Equipment to supply both pre-treatment and post-treatment solutions.

OZOPRO™ ozonators feature air cooled Corona Lamp Technology that operate at low and medium frequencies. All components are UL or CSA approved and workmanship is per the order of electricians of Quebec, Canada. Plastic enclosures are fire retardant and in accordance with the North American standards. Metal enclosures are NEMA 4 or NEMA 12.

Ozone rating is per Humidity at a Dew Point of -40°C, 15 psig, 20°C and air flow rate of 7 CFH per B lamp or 30 CFH per D lamp.

For example:

A DPO3 4B machine will need 4 x 7 = 28 CFH (with air properties as defined above).

A DPO3 4D machine will need 4 x 30 = 120 CFH (2 CFM) with the same air properties.

OZOPRO™ Ozonators feature:

Cost-effective ozone production.

Low power consumption at low frequency.

Air cooled - no water cooling maintenance.

Easy maintenance and troubleshooting.

A modular design that allows for easy system upgrade and expansion.

Several models to suit a wide range of flows.

Standard models from 2 - 200 grams/hour.

Custom designed models also available.

Designed for Dry Air Feed or Oxygen Feed for optimal performance.

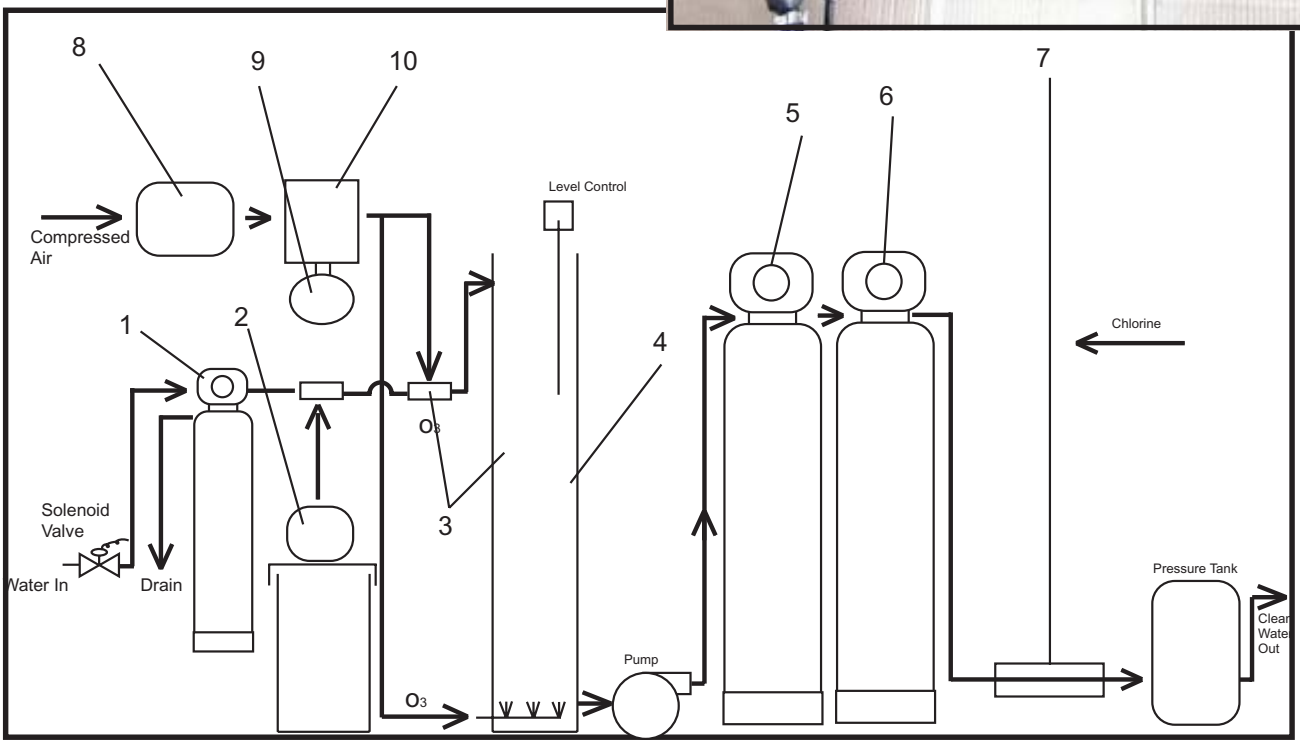
Ozone System Configuration:

Any ozone water treatement consists of the following steps:

1. Filtration of suspended solids
2. pH adjust
3. O_3 injection (venturies and/or contact columns)
4. Retention tank (allows for chemical reactions to take place)
5. Coarse filtration and activated carbon to remove suspended solids
6. Softeners or Reverse Osmosis for hardness removal and TDS reduction
7. Chlorine injection in the case of municipal distribution in order to keep residual oxidant in the water
8. Air treatment to reduce humidity for an Air Fed system or O_2 generators
9. OZOPRO™ ozone generator
10. Controls for O_3 injection in a non-continuous feed system

Note: Numbers correspond to the diagram below

Shown below is the inside of a small B-series OZOPRO™ ozonator. Three corona lamps can be seen in the upper right-hand corner of the housing. The lamps create ozone by replicating the electrical discharge of lightning during a thunderstorm. Air or oxygen passes between two electrodes at a high voltage and the resulting discharge breaks O_2 molecules apart into free oxygen atoms, allowing these to create O_3 when collisions with other O_2 molecules occur.



Applications

	Examples
Disinfection of water:	
Destroys or kills living organisms by oxidation.	E-coli, algae, giardia, Cryptosporidium.
Color removal:	
Breaks down organic molecules by oxidation.	Humic acids, tannins, THM precursors, from decaying leaves, etc.
Heavy metals removal:	
Precipitates metals by forming insoluble oxides.	Iron, manganese, copper, gold, silver, lead, tin, etc.
Odor removal:	
Oxidizes inorganic molecules that cause odors.	H_2S in water, H_2S in air, etc.

Ozone technology has already proven its worth in the following fields:

- Municipal potable water
  - Primary disinfection
  - Color removal
  - THM prevention
  - Iron and Manganese removal
- Bottled water
  - Disinfection
- Campgrounds
- Vegetable wash
- Labs

Model	O_2 Feed		Air Feed		Nominal W/H/D[1] (inches)	Nominal Weight[1] (lbs)	Nominal Power[2] (kW)	Nominal O_3 Air CFH	Nominal O_3 Oxygen CFH
	O_3 grams per Hour	O_3 Lbs per Day	O_3 grams per Hour	O_3 Lbs per Day					
DPO3 1B	4.50	0.24	1.50	0.08	8x8x5	20	0.05	15	5
DPO3 3B	13.50	0.72	4.00	0.24	12x12x5	30	0.15	45	15
DPO3 5B	22.50	1.20	7.50	0.40	16x12x5	45	0.25	75	25
DPO3 10B	45.00	2.40	15.00	0.80	30x20x10	75	0.50	150	50
DPO3 1D	10.00	0.53	5.00	0.26	16x40x10	155	0.10	15	5
DPO3 2D	20.00	1.06	10.00	0.53	16x40x10	170	0.20	30	10
DPO3 4D	40.00	2.12	20.00	1.06	24x90x20	400	0.40	60	20
DPO3 8D	80.00	4.24	40.00	2.12	24x90x20	650	0.80	120	40
DPO3 12D	120.00	6.36	60.00	3.18	36x90x20	900	1.20	180	60
DPO3 20D	200.00	10.60	100.00	5.30	48x90x20	2000	2.00	300	100
DPO3 40D	400.00	21.20	200.00	10.60	72x90x36	2800	4.00	600	200
DPO3 80D	800.00	42.40	400.00	21.20	70x72x56	5500	8.00	1200	400
DPO3 100D	1000.00	53.00	500.00	26.50	custom	N/A	10.00	1500	500
DPO3 200D	2000.00	106.00	1000.00	53.00	custom	N/A	20.00	3000	1000

Other models are available on request. Please contact Durpro Ltd. for further information.

1Weight and dimensions are approximate and may vary with the individual system. Durpro Ltd.'s engineers can design a system to suit your specific needs. 2Machines operate at 110VAC or 220VAC.