

## Spartan Environmental Technologies

Spartan supplies ozone generators, ozone water treatment systems and advanced oxidation processes for a wide variety of industries. We supply both packaged skid mounted systems as well as systems engineered for specific client applications.

### **SPARTOX™ Ozone Water Treatment Systems**

SPARTOX ozone water treatment systems are self-contained units that produce ozone and mix it with water under pressure. SPARTOX ozone systems are easy to install, operate and maintain. It is highly reliable as a result of both active and passive protection systems built into the design. The standard SPARTOX system comes with the following equipment:



- ❖ Air Cooled Ozone Generator
- ❖ Ambient Ozone Monitor
- ❖ Oxygen Concentrator/Compressor
- ❖ Venturi based Ozone Injection System
- ❖ Booster Pump/Motor Starter
- ❖ Triple Guard™ Back Flow Protection
- ❖ UL Rated Control Panel with PLC/Touch Screen HMI

All of the equipment comes integrated and mounted on a stainless steel skid with a small foot print. Ozone concentrations of 5-10% are achievable. Smaller systems have on board oxygen supply that make the system self sufficient, no need for compressed air. The ozone water injection system is designed to achieve 90% plus ozone transfer efficiency.

The generator is protected by Spartan's Triple Guard™ back flow protection system. Back flow of water into the ozone generator will severely damage the equipment. Simple check valves are not sufficient protection. The Triple Guard system

employs check valves, a liquid trap, differential pressure measurement and solenoid valve to prevent back flow from reaching the ozone generator (see system P&ID below). The system has both manual and automatic controls, the latter feature supported by the on board PLC.

The SPARTOX comes standard with safety systems such as an ambient ozone monitor that senses elevated ozone levels in the air around the unit and shuts down the system, if those levels are too high. The door latch has a shut down interlock to prevent unauthorized personnel from opening the control panel during operation. The PLC will shut down the system in case of a failure of any key components to prevent further damage to the system. All relays and instruments are protected by fuses. The control panel is built to NEC and ANSI codes and UL rated, CSA rating is an option. The system requires only a single electrical connection and water connections for water in and out of the system.

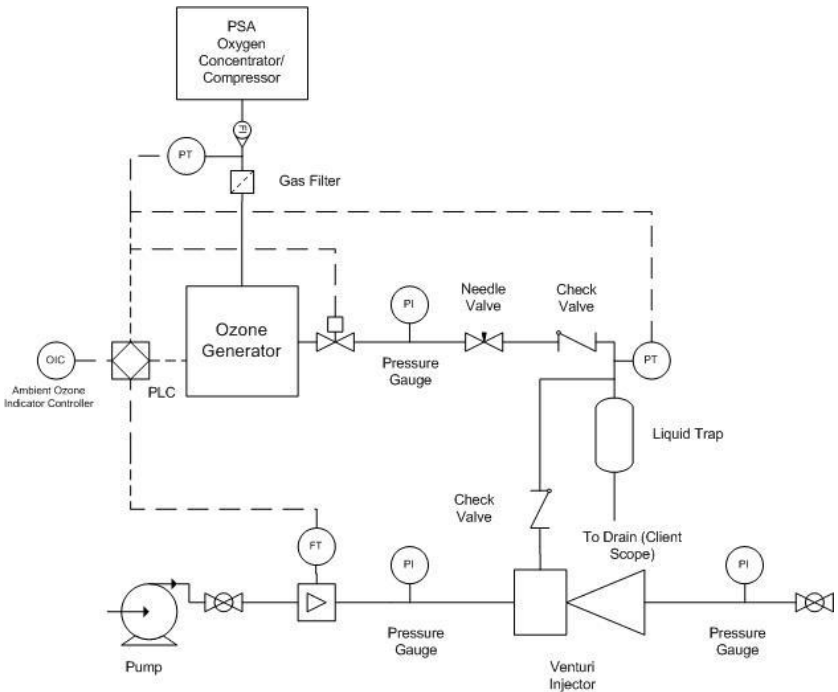
## Systems

SPARTOX systems can be sized from 20-240 g/h (1-13 lbs/day) of ozone and can be integrated with UV or Peroxide to create an Advanced Oxidation Processes. Water flow rates will vary from application to application and applied ozone dose. The system can be customized for the specific application. Power requirements vary with size and application. The system can be adapted for most power sources. Contact Spartan for further information.

## Applications

Ozone can be used for both water disinfection and oxidation to remove organic and inorganic contaminants. Applications include:

- ❖ Drinking Water Treatment
  - Disinfection
  - Fe/Mn Removal
  - Hydrogen Sulfide Removal
  - Taste and Odor Removal
  - Color Removal
- ❖ Bottled Water/Bottle Washing
- ❖ Clean In Place Disinfection
- ❖ Cooling Water Treatment
- ❖ Fruit and Vegetable Washing
- ❖ Wastewater Treatment
  - COD Reduction
  - TOC Reduction
- ❖ Water Recycling and Reuse



**SPARTOX Integrated Ozone Water Treatment System P&ID**