

# Reliable. Flexible. Experienced.

Ozone and Advanced Oxidation



CAPITAL CONTROLS® Ozone Generation Systems



# Ozone experience since the '70s

A powerful oxidant with a fast reaction time, no added chemicals, and reduced disinfection by-products, ozone is an appealing and growing option for water and wastewater treatment. De Nora offers reliable, robust and proven ozone solutions to ensure peace of mind, backed by extensive global experience. With the comprehensive CAPITAL CONTROLS® Ozone series, users have the flexibility to choose a complete packaged system or a single component, determined by the unique needs of each application. CAPITAL CONTROLS® Ozone experts provide the guidance and advice you'd expect from a company with over 45 years of experience.

## Reliable and robust technology

- Precisely designed for simple, long-lasting and energy-saving operation.
- Robust mechanical arrangement of the proprietary XTL™ dielectric decreases maintenance and increases uptime.
- Choose O3-SAFEGUARD™ dielectric electronic control, individual fuse protection, or a combination of the two for higher process monitoring and reliability.

## Flexible solutions

- From a single component to a complete packaged system that generates up to 6,000 pounds (113 kg/h) of ozone per day.
- De Nora experts support customers with on-site piloting and lab-scale testing in containerized plug-and-play pilot packages.
- CAPITAL CONTROLS® Ozone systems use standard, globally-available components, making aftersales support easier, quicker and less expensive.

## Experience and expertise

- Unmatched ozone experience, offering solutions since 1970.
- More than 1,300 CAPITAL CONTROLS® Ozone generators have been installed around the world.
- Expertise across a range of applications.

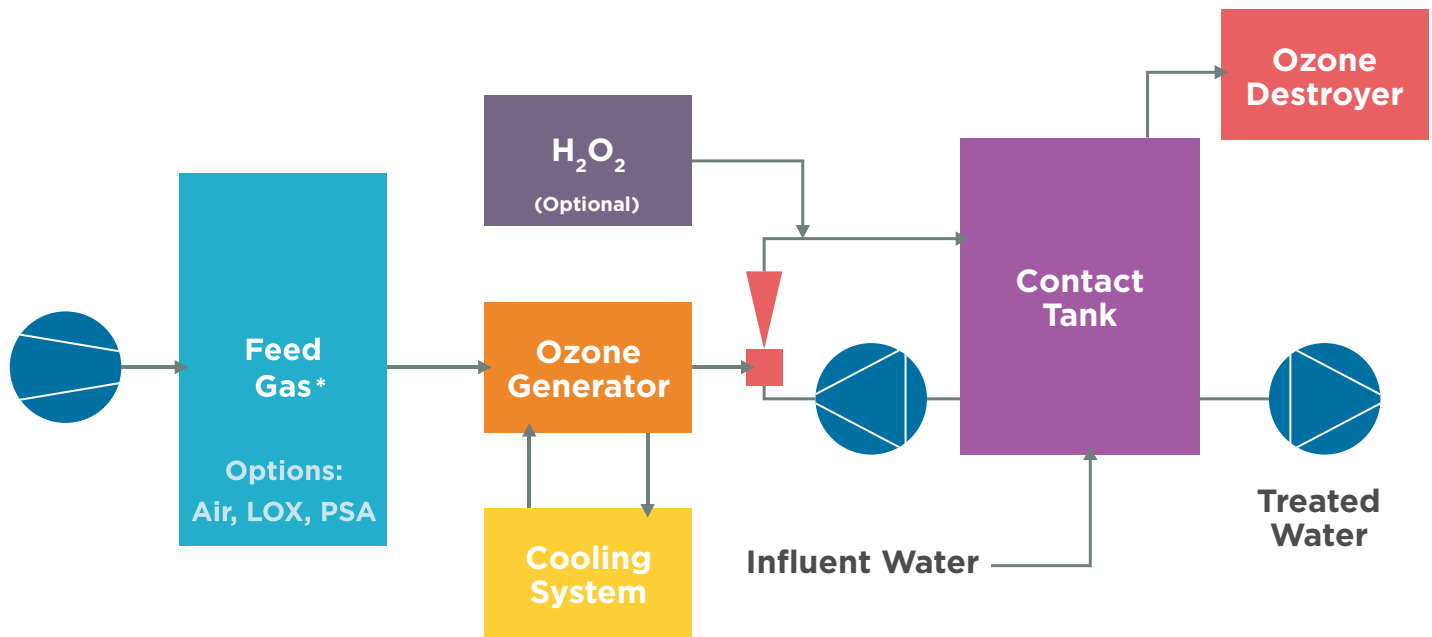
### CAPITAL CONTROLS® Ozone Applications

- Advanced oxidation processes (AOP)
- Biological sludge reduction
- Complex organic molecule oxidation
- Disinfection
- Heavy metal removal
- Micropollutant treatment
- Odor & color removal
- Potable reuse



## How it works

Inside the generator, ozone is produced when oxygen molecules are separated by an energy source into oxygen atoms, which collide with an oxygen molecule to form ozone. A high voltage alternating current is applied across a dielectric discharge gap that contains an oxygen-bearing feed gas. When ozone is dissolved in water, the free radicals that are formed have excellent oxidizing capacity on pollutants and molecules.



### MCP Series

The CAPITAL CONTROLS® MCP small-size range of ozone generators generate from 5.5 to 75 lbs/day (40 g/h to 1,400 g/h) of ozone across five different model sizes. Systems offer flexibility, simple maintenance and a host of other operational features to ensure maximum uptime and cost effectiveness. All systems have a compact design and are integrated into a painted stainless steel cabinet. Water-cooled ozone generator and air-cooled power supply unit.

### TPF Series

The CAPITAL CONTROLS® TPF mid-size range of ozone generators have thirteen different models producing between 100 and 2,000 lbs/day (1 kg/h - 37 kg/h) of ozone in concentrations between 2% wt and 15% wt. Flexible systems offer a range of features to ensure simple maintenance, maximum uptime and cost effectiveness. All systems have a compact design and are skid-mounted up to 1,000 lbs/day (8 kg/h). Water-cooled ozone generator and air-cooled or water-cooled power supply unit.

### DTPF Series

The DTPF large size of ozone generators systems produce up to 6,000 lbs/day (113 kg/h) of ozone with concentrations between 2% wt and 15% wt. Ozone generator and water-cooled power supply unit.

### Containerized Solutions

Customized containerized solutions include feed gas preparation system, ozone generator, pump-injector or diffusion contact system, safety and process monitoring, MCC for power distribution and main PLC in a compact container for complete process management.

\* For all CAPITAL CONTROLS® Ozone models, the feed gas preparation system can be either dry air, liquid oxygen (LOX), or oxygen concentrated from air using pressure swing adsorption (O<sub>2</sub> by PSA).



# Global Aftermarket Support

To provide a premium customer experience, De Nora offers after-sale support program in four areas:

## **Technical Service And User Training**

Anywhere in the world, De Nora factory-trained technicians train to properly use and maintain your products. De Nora provides a 24/7 contact center so that you can reach us wherever you are.

## **Spare Parts and Consumables**

Supplied directly from De Nora Water Technologies and guaranteed to be produced to the original specifications and tolerances for exact form, fit and function.

## **Upgrades & Retrofits**

De Nora will guide you through the process of bringing your facility up to current specifications.

## **Asset Management and Solutions**

De Nora Water can help to assess the performance of your water treatment system in respect to your current and future throughput/capacity and quality goals.

