BIO UV Group

The water treatment specialist

ozone
triogen® PPO_3

Ozone made simple

The triogen® PPO_3 range is the newest generation of positive pressure ozone from BIO-UV Group. The generators incorporate the triogen® PPO_3 ozone production modules, **state-of-the-art communications and connectivity**, together with **advanced safety and operational features**. The turn-key ozone generators are available in **two different control configurations**, alongside **a range of sized and specified ancillaries** as well as a **complete skid-mounted system** including feedgas and ozone injection.

applications

- Recirculating Aquaculture System
- Cooling and process waters
- Food and Beverage, i.e CIP
- Water re-use and Wastewater
- Drinking and Municipal water
- Commercial leisure

benefits +

- Efficient production of ozone at high concentration
- Simple to install and operate
- Cost effective and reliable performance
- Variable, easily adjustable ozone output
- Modern communications & networking
- Advanced safety & operability features
- Available in multiple configurations to suit requirements

PPO_3-2

PPO_3-4

PPO_3- Flex-2

technical features

- Corona discharge ozone generation capable of up to 1.2 kg O_3/h variable ozone production and up to 12 wt% concentration
- **HMI Touch screen** and PLC offer local, remote analogue, and remote digital controls – as well as cutting edge **ozone yield and concentration matrix, power trending**, and **OPEX calculator**
- **Available in two different versions to suit requirements** – the flagship PPO_3 (local, remote analogue, and remote digital controls with yield/concentration matrix and OPEX calculator/ trending) and PPO_3-Lite (local & remote analogue controls)
- Also available in a complete skid-mounted, turn-key system with booster pump and injection manifold – PPO_3-Flex
- Oxygen (90-99 wt%) or dry air feedgas*
- **Water cooled**, Positive Pressure Ozone
- Optional SMS alerts (flagship PPO_3 only)
- Separately controlled ozone circuits: PPO_3-8 (2 x 240g circuits), PPO_3-16 (4 x 240g circuits), providing built-in redundancy and duty standby

*All feed gases require a minimum 0.5% Nitrogen content, dewpoint ≤-60°C, and to be free of contaminants

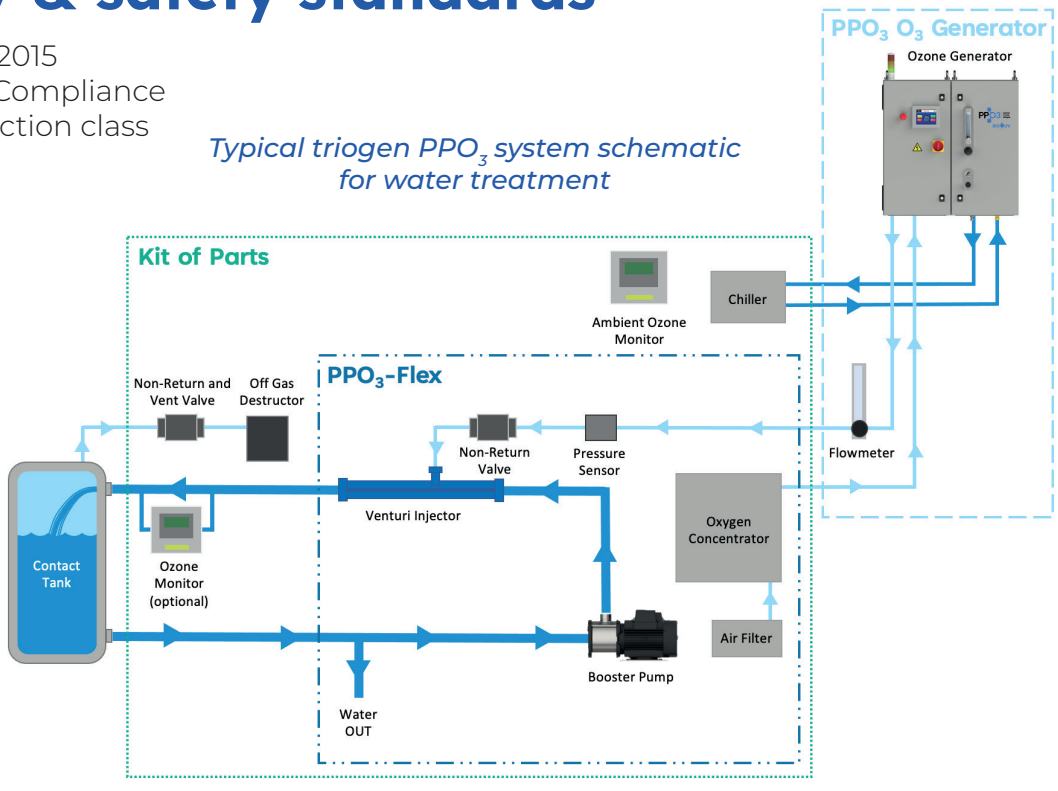
system performance - nominal data

Model	Nominal Ozone Output (g/h)		Nominal input / operating pressure (bar g)		Cooling water flow at 12°C input, with 5°C temperature rise (m^3/h)	Power Supply Rating v (±10v) / phase / Hz	Nominal Power consumption (kW)
	Oxygen (10 wt% O_3)	Dry air feedgas (4 wt% O_3)	Oxygen (10 wt% O_3)	Dry air feedgas (4 wt% O_3)			
PPO_3-1	60	25	3/1	4/2	0.13	230 / 1 / 50-60	0.7
PPO_3-2	120	50	3/1	4/2	0.26	230 / 1 / 50-60	1.3
PPO_3-4	240	100	3/1	4/2	0.51	230 / 1 / 50-60	2.2
PPO_3-8	480	190	3/1	4/2	1.02	400-480 / 3 / 50-60	4.4
PPO_3-16	960	380	3/1	4/2	2.05	400-480 / 3 / 50-60	8.8
PPO_3-Flex-2	120	-	3/1	-	0.26	230 / 1 / 50-60	4.0

quality & safety standards

- ISO 9001 : 2015
- CE/UKCA Compliance
- IP54 protection class

Typical triogen PPO_3 system schematic for water treatment



overall technical data

Model	Range Ozone Output (g/h)		Range Ozone Concentration (wt %)		Cooling water flow range (m^3/h)	Range Power consumption (kW)
	Oxygen feedgas	Dry air feedgas	Oxygen feedgas	Dry air feedgas		
PPO_3-1	15 - 75	5 - 40	1.5 - 12	0.5 - 4.5	0.06 - 0.3	0.3 - 0.85
PPO_3-2	30 - 150	8 - 80	1.5 - 12	0.5 - 4.5	0.13 - 0.6	0.5 - 1.6
PPO_3-4	60 - 300	20 - 160	1.5 - 12	0.5 - 4.5	0.26 - 1.2	0.9 - 3.2
PPO_3-8	150 - 600	80 - 320	1.5 - 12	0.5 - 4.5	0.26 - 2.4	0.9 - 6.4
PPO_3-16	300 - 1200	160 - 640	1.5 - 12	0.5 - 4.5	0.26 - 4.8	0.9 - 12.8
PPO_3-Flex-2	20 - 125	-	1.5 - 12	-	0.13 - 0.6	2.4 - 4.0

controls and outputs

	PPO_3 and PPO_3-Flex	PPO_3-Lite
Interface	5.7" Touch Screen	5.7" Touch Screen
Screens	Start-Up/Operation Gas Parameters Operator menu Maintenance Alarm & Alarm History Event & Event History Digital and Analogue I/O Status Critical Error Help OPEX calculator	Start-Up/Operation Gas Parameters Operator menu Maintenance Alarm & Alarm History Event & Event History Analogue I/O Status Critical Error Help
Data	Power Board Temperature in °C System hour counter Coolant water temperature Gas Pressure System Power Consumption	Power Board Temperature in °C System hour counter Coolant water temperature Gas Pressure
Safety features (alarms)	Coolant flow failure Coolant over temperature Feed gas pressure fault Power Board over temperature Ozone cell failure High current and RCD trip protection Emergency Stop Pressed Control Cabinet Overtemperature Transformer Overtemperature	Coolant flow failure Coolant over temperature Feed gas pressure fault Power Board over temperature Ozone cell failure High current and RCD trip protection Emergency Stop Pressed
Ozone Setpoint	Matrix based on Concentration (%) and Rate (g/Hr) 20-100% selection via numeric input on HMI screen External 4-20ma signal External Value Via Modbus TCP/IP	20-100% selection via numeric input on HMI screen External 4-20ma signal
Local control	All core functionality via the HMI	All core functionality via the HMI
Remote Analogue	Terminals provided for external start, stop and reset push buttons Volt free relay outputs provided for Ozone on and Fault signals	
Remote control (Digital - MODBUS)	Start And Stop Ozone Setpoint Process Data Status Messages Warnings Errors Alarms Events	-

materials - PPO_3 and PPO_3-Lite

- Enclosure: Epoxy powder coated Sheet Steel
- Ozone module: 316L stainless steel electrode assembly inside a dielectric tube

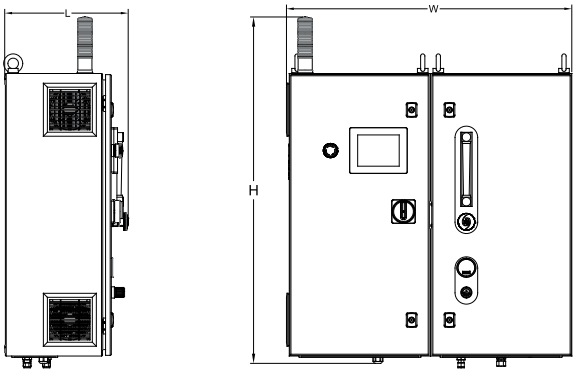
materials - PPO_3-Flex

- Enclosure: Epoxy powder coated Sheet Steel
- Booster pump: Stainless Steel housing & impeller, 5.7m^3/h nominal flow
- Injection manifold: Mazzei injector, water pipework, and PTFE ozone dosing tubing

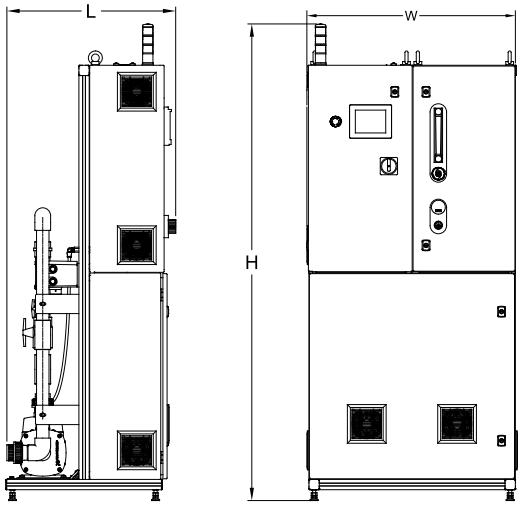
available ancillaries

- A range of booster pumps & injectors for a variety of conditions
- Ozone off-gas vent valve & catalytic Ozone off-gas destructor
- Oxygen concentrator
- Cooling water pump(s) and chiller(s)
- Dissolved ozone and REDOX monitors
- Ambient ozone gas monitor
- Ozone gas concentration analyser
- All recommended spares and valves

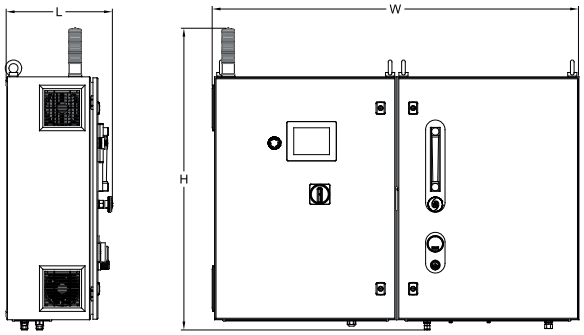
Model	Overall System Dimension (mm)	Pipework connection (OD: in/mm)		Cooling water connections (OD: in/mm)	Weight (e)
		Feedgas in	Ozone out		
PPO_3-1	340L x 808W x 994H	0.39 / 10		0.47 / 12	80 kg
PPO_3-2	340L x 808W x 994H	0.39 / 10		0.47 / 12	100 kg
PPO_3-4	340L x 1208W x 994H	0.39 / 10		0.47 / 12	150 kg
PPO_3-8	626L x 816W x 1960H	0.59 / 15		0.59 / 15	300 kg
PPO_3-16	626L x 1616W x 1960H	0.70 / 18		0.70 / 18	600 kg
PPO_3-Flex-2	664L x 816W x 1847H	0.39 / 10		0.47 / 12	200 kg



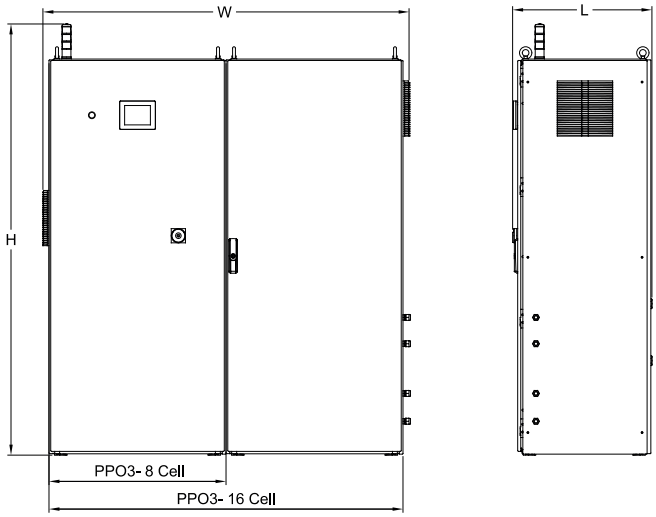
PPO_3-2



PPO_3- Flex-2



PPO_3-4



PPO_3-8 and PPO_3- 16

contact

triogen® by BIO-UV Group
export@bio-uv.com
www.bio-uv.com