

# Ozonia\* Membrel

Electrolytic Ozone Generators



# Electrolytic Ozone Generators

The most effective way to disinfect ultrapure water systems in industrial and pharmaceutical applications.

**Pure & Ultrapure Water**

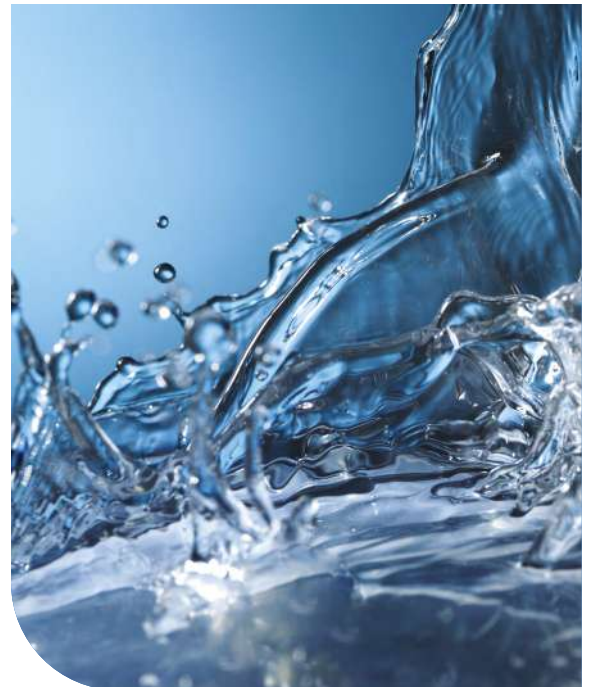
**Purified & Highly-Purified Water**

**Water For Injection**



**Purified Water  
(PW, UPW, etc) in:**

- Pharmaceuticals
- Medical technologies
- Cosmetics & Personal care products
- Semiconductors
- Other high purity applications



# Ozone Technology: Ozonia Membrel MkV

The **Ozonia Membrel MkV** is the latest generation of electrolytic ozone generators which uses solid polymer electrolyte and state-of-the-art electronics for ozone production. The **Ozonia Membrel MkV** electrolytic process is a **unique technology which produces ozone from water** instead of gaseous air or oxygen. The ozone is generated and used directly within the pure water system after multiple treatment processes have purified the raw/source water.

## How It Works

The feed water, taken from the main UPW loop, enters the anode chamber of the cell where it is dissociated into its two elements at the contact surface between the anode and the electrochemically stable membrane.

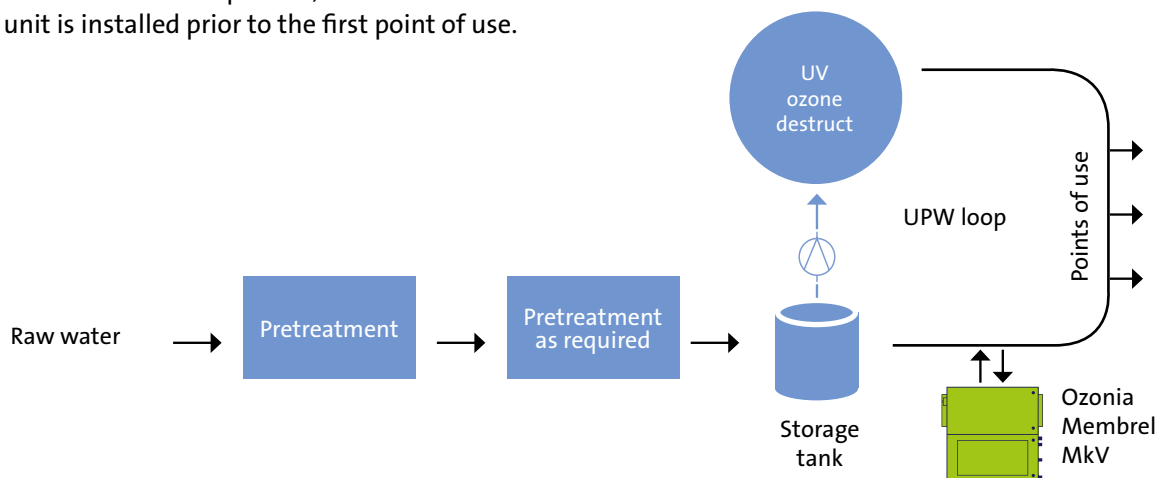
The hydrogen proton travels through the membrane and is reduced to hydrogen gas on the cathode side before being vented to atmosphere. On the anode side a portion of the liberated oxygen is converted into ozone which is quickly absorbed by the feed water. The water/oxygen/ozone mixture leaving the cell is reintroduced to the main body of water circulating in the loop.

The installation of an **Ozonia Membrel MkV** is an effective way of sanitizing a pure water loop. Because the ozone is produced from the water being treated there are no contaminants. The use of chemicals or additional treatment steps is not necessary.

By dosing an ozone level of 30 to 100 ppb the colony forming unit count and formation of bio-film is kept to a minimum. Should ozone be undesirable in the process, an ultraviolet irradiation ozone destruct unit is installed prior to the first point of use.

## Main Features

- Electrolytic ozone production
- Easily upgradeable from 3g O<sub>3</sub>/h to 9g O<sub>3</sub>/h
- User-friendly with individual cell controls
- Remote control capabilities
- No ionic contamination
- Easily installed, maintaining system integrity
- Integrated flow control



The Ozonia Membrel ozone generator is part of a large-scale fixed installation (LSFI) for the generation of ultrapure water.

## Technical Features

- **Power supply:**  
1 x 230 VAC +10%/-20%,  
50/60 Hz
- **Regulation range:**  
8 to 100%
- **Ambient temperature:**  
+5 to 40°C / +41 to 104°F
- **Design altitude:**  
< 1,000 m.a.s.l. / 3,280 ft.a.s.l.
- **Humidity:**  
RH < 65% (yearly average)
- **Protection class:**  
IP 54, Nema 12
- **Conformity:**  
EN, IEC, ISO, CE, UL, CSA

## Materials

- **Enclosure:**  
304 SS
- **Wetted surfaces:**  
316L SS, titanium, PTFE, PVDF,  
Viton, PSU; certifications:  
FDA & EU, EN10204 3.1
- **Process & waste connections:**  
316L SS

## Complementary Equipment

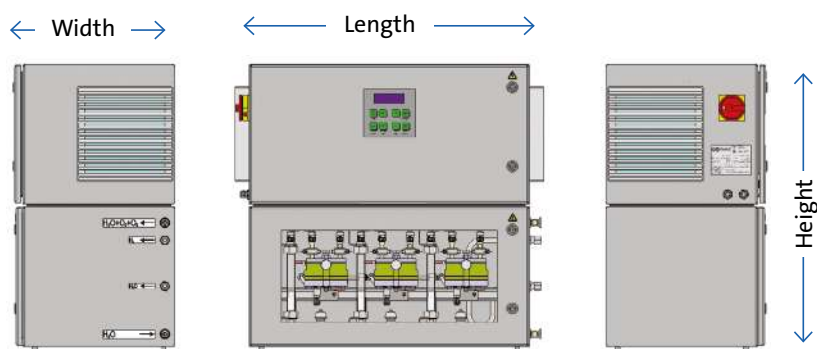
- Ultraviolet ozone destruct unit
- Residual ozone analyser
- Vent ozone destructor
- Optional triclamp for waste lines

## Remote Control and Alarms

- Ozone production ON/OFF
- Set-value (4-20 mA)
- Low flow automatic disconnect
- Voltage & temperature alarms

Model	Ozone Production	Feedwater			Electrical Rating (kW)
	g/h	Nominal Flow Rates (l/h)	Maximum Pressure (barg)	Conductivity (µS/cm)	
Ozonía Membrel MkV/1	3	100	< 6	< 20	0.46
Ozonía Membrel MkV/2	6	200	< 6	< 20	0.86
Ozonía Membrel MkV/3	9	300	< 6	< 20	1.27

## Ozonía Membrel MkV/1 - MkV/2 - MkV/3



Model	L x H x W		Weight	
	inch	mm	lb	kg
Ozonía Membrel MkV/1	30.3 x 28.7 x 15.7	770 x 730 x 400	123.5	56
Ozonía Membrel MkV/2	30.3 x 28.7 x 15.7	770 x 730 x 400	134.5	61
Ozonía Membrel MkV/3	30.3 x 28.7 x 15.7	770 x 730 x 400	145.5	66

## Connection Data

- **Mechanical:**
  - Purified water: triclamp TC25  
10mm ID
  - Waste lines: threaded  
bulkhead fittings (10mm ID,  
12mm OD)
- **Electrical:**
  - Electrical connection in single  
phase (1 X 230V mono)

Veolia's **Ozon**ia ozone technology portfolio includes products from the laboratory scale to the largest ozone systems ever built. Veolia uses our extensive ozone technology experience to provide the industry's most reliable and robust products.

Our unique ability to deliver the most reliable and robust systems is why thousands of customers around the world have chosen **Ozon**ia ozone systems.

We have been the ozone industry pioneer for over 25 years. Trust Veolia to deliver the highest quality ozone solutions to meet your treatment challenges.

**7** Product Ranges  
Certified To  
International Standards

Over **10,000**  
Installations

Over **25** Years  
Of Experience

★ Offices and production centers

● Offices



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