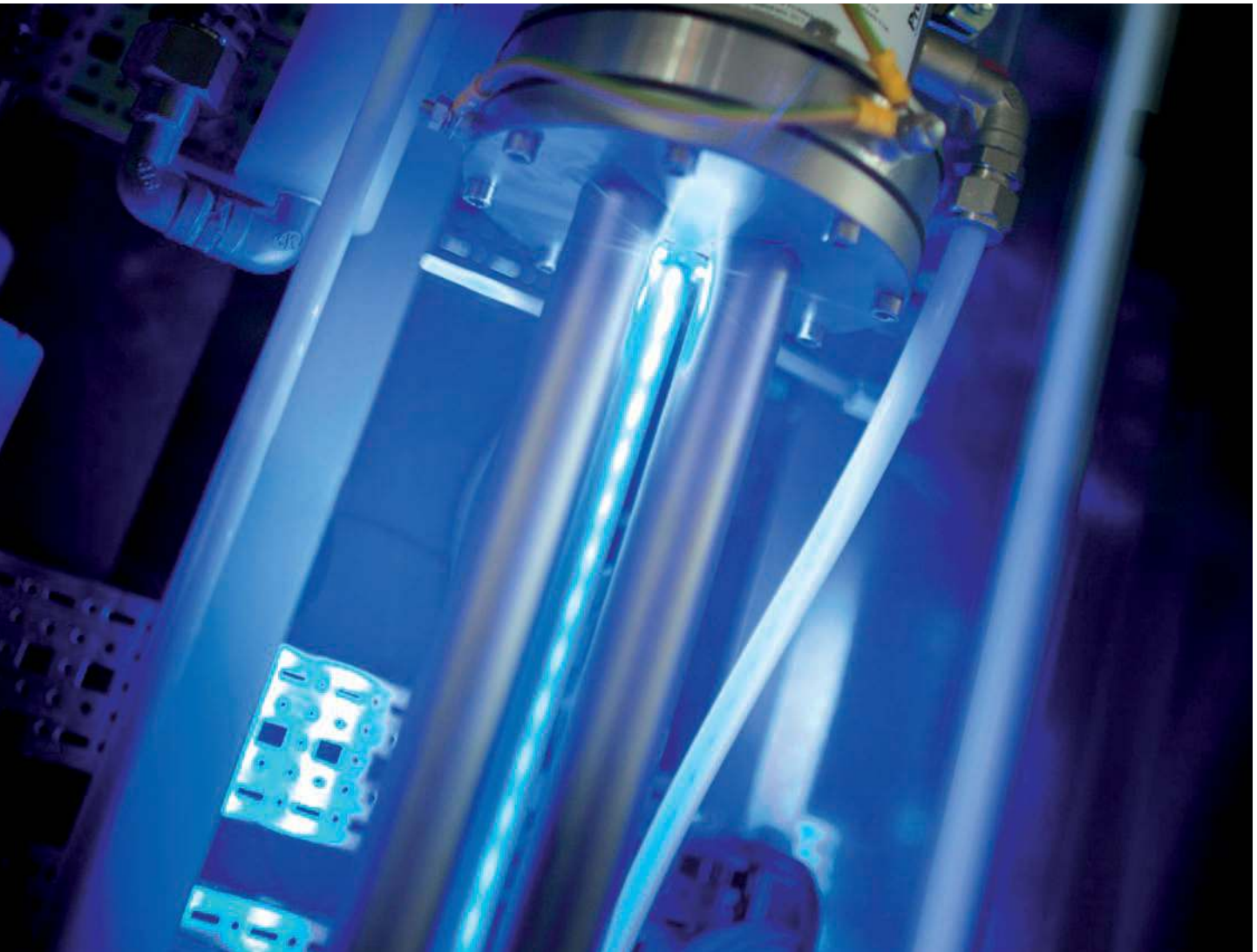


Powerful and yet environmentally-friendly

Innovative ozone technology –
Disinfect and oxidise ecologically and economically



Ozone

The most effective disinfectant



The benefits for you: unbeatable efficiency and environmentally-friendly.

Ozone is the strongest known oxidation agent and disinfectant currently used in water treatment.

It reliably removes colouring and odours without any harmful by-products. It impressively disinfects bacteria, viruses, fungi and parasites. Ozone oxidises inorganic substances, such as iron, manganese, arsenic, nitrite and sulphite. Ozone reacts quickly with a number of harmful substances, either by directly attacking the O_3 molecule or indirectly through the hydroxyl radicals produced.

Moreover, the decisive advantage of ozone is that no undesirable by-products result, unlike the case with other comparable oxidation agents and disinfectants, such as chlorine. It breaks back down into its original substance: i.e. oxygen.

When combined with other processes (UV light or peroxide), even man-made trace substances, such as the remains of hormones or antibiotics, can be rendered harmless.

Benefits of ozone

- Environmentally-friendly operation, as the operating gas used is either air or oxygen (no chemicals).
- On-site generation as required conserves resources.
- Efficient oxidation of inorganic and organic impurities.
- Crystal clear water thanks to microflocculation of colloids.
- Efficient disinfection without by-products.

As a highly reactive gas, ozone is generated on site from oxygen, and introduced to the water directly, without interim storage. Because of its high reactivity, ozone decomposes back into oxygen in the water, with a half life of several minutes. All the components of an ozone treatment system should be perfectly coordinated to each other and the planned application to achieve an optimum relationship between ozone generation and its effect.

Benefits of ozone generation systems

- Good reliability – robustness – operational safety – good availability.
- Extremely easy to maintain and low operating and maintenance costs.
- High efficiency ensures low energy and cooling water consumption.
- High-quality materials for a virtually infinite service life.



Applications for ozone

ProMinent has the right ozone-based water treatment solution tailored to your needs.

The benefits for you: an efficient and extensive range of products, proven the world over, operationally safe and highly economical.

Public and private Swimming pools

- Reduction of chloramines and trihalomethanes, avoiding that typical swimming pool smell.
- Crystal clear water thanks to micro-flocculating action.
- Reliable microbiological barriers in therapy pools.
- Lower operating costs, by reducing the circulation capacity and reducing the supply of fresh water and lowering the cost of chemicals used in flocculant metering and chlorine consumption.

Local treatment of potable water

- Improved odour and taste.
- Removal of colouring.
- Breakdown of trace substances.
- Oxidation of metals such as iron, manganese, arsenic and organic impurities.
- Effective disinfection.

Local waste water treatment

- Breakdown of trace substances.
- Reduction of clarifier sludge.
- COD reduction/breakdown.
- Removal of colouring.

Industry

- Removal of iron and manganese.
- Disinfection of process water.
- Removal of odorous substances in air scrubbers.

Cooling water

- Control of biological growth/biofilm.
- Avoidance of microbiological impurities/corrosion.
- No AOX formation.

Food and beverage industry

- Removal of iron and manganese from mineral and table water.
- Possible disinfection and microbiological protection when bottling glass and PET bottles with table water.
- Treatment of raw water in the beverage industry.
- Disinfection for rinsers.
- Disinfection of production water.

Systems for every performance class

Ozone generation tailored to your needs

Ozone systems OZONFILT® OZVa

The systems are best suited to small to medium ozone requirements of up to 105 g/h.

For enhanced safety and greater cost-effectiveness, the product range is equipped with an electronic power unit, which guarantees an accurately adjustable volume of ozone independent of fluctuations in mains voltage or pressure. The systems are operated with compressed air or oxygen.

Ozone systems OZONFILT® OZMa

Maximum operational safety and minimised operating costs are guaranteed when using the zero-maintenance ozone generator to generate up to 735 g/h ozone from compressed air or oxygen.

Since air drying is controlled by demand and self-optimising, energy and cooling water consumption is minimised. Controlling the volume flow of gas results in reduced consumption of operating gas which requires huge amounts of energy to treat. The systems offer energy savings of up to 30% over conventional air treatment.



Ozone is increasingly being used as a universal disinfectant.

Ozone is the strongest known oxidation agent and disinfectant for water treatment. Generated in an environmentally friendly manner from oxygen or air, the ozone decomposes into oxygen again after use. ProMaqua, a brand of the ProMinent Group, has over 40 years experience in diverse applications.

Performance overview of ozone systems

Output (g / h)	OZVa 1-4	OZVa 5-7	OZMa 1-6 A	OZMa 1-6 O
1,000				
500				
200				
100				
50				
20				
10				
5				
2				
0				
Operating gas	Air	Oxygen	Air	Oxygen
Ozone concentration	20 g/Nm ³	100 g/Nm ³	20 g/Nm ³	100 g/Nm ³

OZONFILT® OZVa

Ozone system

Ozone generation offering optimum operational safety coupled with maximum efficiency. The compact product range complies with the most stringent quality requirements.

- Simple operation.
- Ozone generation regardless of pressure and voltage.
- Direct injection without injector system with up to 2 bar back pressure.
- Maximum efficiency with low cooling water consumption.
- Digital display of ozone output in "grammes/hour".
- Effective, independent of ambient conditions (air humidity, temperature).
- Infinitely variable output control between 3-100 %.
- Different designs for capacity ranges of 5 to 90 g/h with ozone concentrations of up to 100 g/Nm³.
- Compact mounting in painted standard control cabinet or stainless steel control cabinet.
- Available with and without mixing device. (Increased efficiency)
- Low maintenance and operating costs.
- Optional: integrated air conditioning.



Technical data for OZVa 1-4 (operating gas: compressed air)		OZVa 1	OZVa 2	OZVa 3	OZVa 4
Ozone output at 20 g/Nm ³	g/h	5	15	35	40
Specific energy requirement for ozone generation	Wh/g	30	30	21	20
Air requirement (only ozone generation)	Nm ³ /h	0.25	0.75	1.75	2.0
Cooling water requirement (15 °C)	l/h	20	30	50	70
Weight approx.	kg	70	75	121	121
Electrical connection	V, Hz, A	230, 50/60, 1,2	230, 50/60, 3	230, 50/60, 6	230, 50/60, 6

Technical data for OZVa 5-7 (operating gas: oxygen)		OZVa 5	OZVa 6	OZVa 7
Ozone generation output at 100 g/Nm ³	g/h	30	60	90
Specific energy requirement for ozone generation	Wh/g	10	10	10
Cooling water requirement (15 °C)	l/h	30	70	100
Weight approx.	kg	75	109	114
Electrical connection	V, Hz, A	230, 50/60, 3	230, 50/60, 6	230, 50/60, 10

OZONFILT® OZMa

Ozone system

Zero-maintenance ozone generation, which is both ecological and economical. Ozone generation with maximum operational safety and minimal operating costs.



- Economical:
Zero-maintenance reactor with a virtually infinite service life.
- Automatic control of the operating gas depending on ozone output:
 - Reduced consumption of operating gas which requires huge amounts of energy to treat.
 - High ozone concentration ensures optimum addition of ozone.
- Air drying is controlled by demand and self-optimising which translates into energy savings of up to 30% for air treatment compared with conventional air treatment systems.
- Low investment costs for adding ozone to water using high ozone gas pressure.
- Automatic ozone generation, virtually independent of fluctuations in voltage and pressure.
- Ambient conditions (pressure/temperature) have no impact.
- Infinitely variable adjustment of the required ozone quantity of between 3 and 100 % of nominal power.
- 7" colour touch panel with data logger and screen plotter.
- Ozone output displayed in g/h.
- PLC Programmable Logic Controller with integrated ozone measurement and PID control.
- Multiple communication interfaces (e.g. LAN, Profibus DP).
Optional: integrated air conditioning.

Technical data for OZONFILT® OZMa 1A-6A (operating gas: compressed air)		OZMa 1A	OZMa 2A	OZMa 3A	OZMa 4A	OZMa 5A	OZMa 6A
Ozone output at 20 g/Nm ³	g/h	70	105	140	210	280	420
Specific energy requirement Ozone generation	Wh/g	16.5	16.5	16.5	16.5	16.5	16.5
Air requirement (only ozone generation)	Nm ³ /h	3.5	5.25	7.0	10.5	14.0	21.0
Cooling water requirement (15 °C)	l/h	90	135	180	270	360	540
Weight approx.	kg	270	280	300	420	445	589
Electrical connection	V, Hz, A	230, 50/60, 10	230, 50/60, 16	230, 50/60, 16	400, 50/60, 16	400, 50/60, 16	400, 50/60, 16

Technical data for OZONFILT® OZMa 10-60 (operating gas: oxygen)		OZMa 10	OZMa 20	OZMa 30	OZMa 40	OZMa 50	OZMa 60
Ozone output at 80 g/Nm ³	g/h	123	184	245	370	490	735
Ozone output at 100 g/Nm ³	g/h	105	158	210	320	420	630
Ozone output at 150 g/Nm ³	g/h	60	90	120	180	240	360
Specific energy requirement Ozone generation	Wh/g	9	9	9	9	9	9
Cooling water requirement (15 °C)	l/h	120	180	240	200	280	420
Weight approx.	kg	220	230	250	320	345	415
Electrical connection	V, Hz, A	230, 50/60, 10	230, 50/60, 16	230, 50/60, 16	400, 50/60, 16	400, 50/60, 16	400, 50/60, 16

OZONFILT® Compact OMVa



Complete system

While they have a modular construction, the systems can also be individually adapted to the respective application. The OZONFILT® is a complete, ready-to-use assembled ozone system with all the necessary components, perfectly matched to each other.

Main areas of use:
Process or product water in the beverage industry (rinser and table water), potable water, process water.

- Excellent process safety thanks to pre-assembled, complete ozone treatment stage with perfectly coordinated components.
- Integrated ozone generation system OZVa or OZMa.
- Well -thought-out assembly on stainless steel frame for plug and play connection.
- Good accessibility.
- Modular construction yet still customisable.
- Compact – requires very little space.
- Pressure-resistant ozone generator built to DIN 19627.
- Ozone point of injection for intensive mixing of ozone/air and the water to be treated.
- Stainless steel reaction tank.
- Destruction of residual ozone gas for the removal of traces of ozone gas.
- Room air monitoring for traces of ozone gas via gas detector with sensor with long-term stability.
- Metering ozone in line with measurements ensures a constant ozone concentration in the reaction tank.

Technical data OZONFILT® Compact OMVa		OMVa 5-200	OMVa 15-500	OMVa 35-1,000	OMVa 40-1,000	OMVa 70-2,000
Ozone system type		OZVa 1	OZVa 2	OZVa 3	OZVa 4	OZMa 1A
Ozone output at 20 g/Nm ³	g/h	5	15	35	40	70
Cooling water requirement (15 °C)	l/h	20	30	50	70	90
Nominal throughput	m ³ /h	1.5- 5	5- 15	15- 30	30- 45	45- 60
Degree of protection	IP	43	43	43	43	43
Electrical connection	V, Hz, A	230, 50/ 60, 1,2	230, 50/60, 3	230, 50/60, 6	230, 50/60, 6	230, 50/60

Contact worldwide



Experts in Chem-Feed and Water Treatment

ProMaqua, a brand of the ProMinent Group of companies, is at home in over 100 countries across the globe. We supply products, systems and service solutions with the same standards all

over the world: quality and reliability. All our experience and expertise in water treatment and chemical feeding is at your disposal – any time, anywhere.

Intergro Co., Ltd

107-107/1 ถ.สุตประเสริฐ (ซ้าย) แขวงบางโคล่ เขตบางคอแหลม กรุงเทพฯ 10120
107-107/1 Sudprasert Rd.(Left), Bangkhlo, Bangkholaem, Bangkok 10120 Thailand
Tel : (662) 6885080-3, Fax : (662) 688-5095, E-mail : sales@intergro.co.th
www.intergro.co.th