

Ozone System OZONFILT® OZMa

Powerful and yet environmentally-friendly. Disinfect and oxidise ecologically and economically.



Ozone capacity 70 – 735 g ozone/h

The ozone systems OZONFILT® OZMa have been designed as pressurised systems, in which the operating gas – air or oxygen – is fed into the ozone generator under pressure.

The ozone is generated from the oxygen in the ambient air and simultaneously metered. A demand-led, self-optimising pressure swing dryer reduces the consumption of compressed air to a minimum. Ozone can therefore be generated operationally safely and reliably even with a high level of ambient air humidity with ozone concentrations of up to 20 g/Nm³. Ozone concentrations of between 3 and 12

ppm can be achieved in the water to be treated with suitable mixing units, depending on the temperature.

Operation with oxygen permits ozone generation with ozone concentrations of up to 150 g/Nm³. Depending on the system type, ozone is produced in 1-3 generators from oxygen provided from special oxygen generators or bottles. Using the suitable mixing equipment, ozone concentrations of up to 90 ppm can be achieved in the water to be treated, depending on the temperature.

Your benefits

- Economical: maintenance-free generator concept with virtually unlimited service life
- Up to 30% energy savings for air treatment, thanks to demand-controlled and self-optimising air drying compared to conventional air treatment.
- Automatic control of the operating gas depending on the ozone output, therefore reduced consumption of operating gas produced with intensive use of energy.
- High ozone concentration ensures optimum ozone solubility in water
- Direct injection without injector system at up to 2 bar back pressure
- Location-independent system monitoring in real time via the DULCOneX platform: Improved process reliability. Reliability and transparency due to real-time monitoring, individual alarms and automated reports.

Field of application

- **Potable water supply:** Oxidation of iron, manganese and arsenic, refinement and taste enhancement and disinfection
- **Waste water treatment:** Degradation/reduction of COD and microcontaminants, reduction of sewage sludge
- **Food and beverage industry:** Oxidation of iron and manganese, disinfection of potable water and rinsing water
- **Swimming pools:** Degradation of disinfection by-products, reliable microbiological barrier and production of crystal-clear water thanks to its microfloculating effect
- **Industry:** Legionella prevention and disinfection of cooling water

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Technical Data

Ozone Generation Systems OZONFILT® OZMa 1-3 A (Process Gas - Air)

Ambient parameters

Max. 85% air humidity of the ambient air, non-condensing, non-corrosive, dust-free, max. ambient temperature: 40 °C (with integrated air conditioning system: 50 °C)

		OZMa 1A	OZMa 2A	OZMa 3A
Number of generator modules		1	1	1
Ozone capacity, measured in accordance with DIN with air at 20 °C, cooling water at 15 °C	g/h	70	105	140
Air consumption (only ozone generation)	Nm ³ /h	3.50	5.25	7.00
Ozone concentration in the gas phase referenced to nominal conditions	g/Nm ³ *	20	20	20
Specific energy requirement at nominal capacity	Wh/g	16.5	16.5	16.5
Power factor at full capacity	cos φ	0.95	0.95	0.95
Ozone connection		Rp 3/8"	Rp 3/8"	Rp 3/8"

* Nm³= m³ at standard conditions (P = 1.013x10⁵Pa, T = 273 K)

Electrical Connection

		OZMa 1A	OZMa 2A	OZMa 3A
Connected load	V/Hz/A	230/50;60/10	230/50;60/16	230/50;60/16
Enclosure rating		IP 54	IP 54	IP 54
Degree of protection with integrated air conditioning unit (internal/external)		IP 54 / IP 34	IP 54 / IP 34	IP 54 / IP 34

Overall Dimensions (Without Mixer)

		OZMa 1A	OZMa 2A	OZMa 3A
Width	mm	1,114	1,114	1,114
Height	mm	1,961	1,961	1,961
Depth	mm	405	405	405

Weight

		OZMa 1A	OZMa 2A	OZMa 3A
Weight	kg	270	280	300

Ozone Mixing

		OZMa 1A	OZMa 2A	OZMa 3A
Max. raw water temperature	°C	35	35	35
Permissible pressure at ozone outlet	bar	0.8–2.0	0.8–2.0	0.8–2.0

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Air Supply

		OZMa 1A	OZMa 2A	OZMa 3A
Air demand	NI/min	73	110	147

Air quality oil and dust-free, non-corrosive, constant priming pressure of 4.5 – 10 bar, max. temperature 40 ° C

Cooling Water

		OZMa 1A	OZMa 2A	OZMa 3A
Cooling water consumption (15 °C)	l/h	90	135	180
Cooling water consumption (30 °C)	l/h	125	190	250
Cooling water inlet pressure	bar	2–5	2–5	2–5
Cooling water inlet, PE pressure hose	mm	8 x 5	8 x 5	12 x 9
Cooling water outlet, open discharge	mm	8 x 5	8 x 5	12 x 9

Cooling water quality No tendency to form lime scale, no corrosive components, removable substances: < 0.1 ml/l , iron: < 0.2 mg/l, manganese: < 0.05 mg/l, conductivity: > 100 µS/cm, chloride: < 250 mg/l

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Ozone Generation Systems OZONFILT® OZMa 4-6 A (Process Gas - Air)

Ambient parameters

Max. 85% air humidity of the ambient air, non-condensing, non-corrosive, dust-free, max. ambient temperature: 40 °C (with integrated air conditioning system: 50 °C)

		OZMa 4A	OZMa 5A	OZMa 6A
Number of generator modules		2	2	3
Ozone capacity, measured in accordance with DIN with air at 20 °C, cooling water at 15 °C	g/h	210	280	420
Air consumption (only ozone generation)	Nm ³ /h	10.50	14.00	21.00
Ozone concentration in the gas phase referenced to nominal conditions	g/Nm ³ *	20	20	20
Specific energy requirement at nominal capacity	Wh/g	16.5	16.5	16.5
Power factor at full capacity	cos φ	0.95	0.95	0.95
Ozone connection		Rp 3/8"	Rp 3/8"	Rp 3/8"

* Nm³= m³ at standard conditions (P = 1.013x10⁵Pa, T = 273 K)

Electrical Connection

		OZMa 4A	OZMa 5A	OZMa 6A
Connected load	V/Hz/A	400/50;60/16	400/50;60/16	400/50;60/16
Enclosure rating		IP 54	IP 54	IP 54
Degree of protection with integrated air conditioning unit (internal/external)		IP 54 / IP 34	IP 54 / IP 34	IP 54 / IP 34

Overall Dimensions (Without Mixer)

		OZMa 4A	OZMa 5A	OZMa 6A
Width	mm	1,320	1,320	1,606
Height	mm	1,961	1,961	1,961
Depth	mm	605	605	605

Weight

		OZMa 4A	OZMa 5A	OZMa 6A
Weight	kg	420	445	580

Ozone Mixing

		OZMa 4A	OZMa 5A	OZMa 6A
Max. raw water temperature	°C	35	35	35
Permissible pressure at ozone outlet	bar	0.8–2.0	0.8–2.0	0.8–2.0

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Air Supply

		OZMa 4A	OZMa 5A	OZMa 6A
Air demand	NI/min	220	293	440

Air quality oil and dust-free, non-corrosive, constant priming pressure of 4.5 – 10 bar, max. temperature 40 °C

Cooling Water

		OZMa 4A	OZMa 5A	OZMa 6A
Cooling water consumption (15 °C)	l/h	270	360	540
Cooling water consumption (30 °C)	l/h	300	400	600
Cooling water inlet pressure	bar	2–5	2–5	2–5
Cooling water inlet, PE pressure hose	mm	12 x 9	12 x 9	12 x 9
Cooling water outlet, open discharge	mm	12 x 9	12 x 9	12 x 9

Cooling water quality No tendency to form lime scale, no corrosive components, removable substances: < 0.1 ml/l , iron: < 0.2 mg/l, manganese: < 0.05 mg/l, conductivity: > 100 µS/cm, chloride: < 250 mg/l

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Ozone Generation Systems OZONFILT® OZMa 1-3 O (Operating Gas - Oxygen)

Ambient parameters

Max. 85% air humidity of the ambient air, non-condensing, non-corrosive, dust-free, max. ambient temperature: 40 °C (with integrated air conditioning system: 50 °C)

		OZMa 1 O	OZMa 2 O	OZMa 3 O
Number of generator modules		1	1	1
Nominal ozone capacity at 100 g/Nm³ ** and cooling water at 15 °C	g/h	105	158	210
Ozone capacity at 150 g/Nm³ *	g/h	60	90	120
Ozone capacity at 80 g/Nm³	g/h	123	184	245
Specific energy requirement at nominal capacity	Wh/g	9	9	9
Power factor at full capacity	cos φ	0.95	0.95	0.95
Ozone connection		Rp 3/8"	Rp 3/8"	Rp 3/8"

Electrical Connection

		OZMa 1 O	OZMa 2 O	OZMa 3 O
Connected load	V/Hz/A	230/50;60/10	230/50;60/16	230/50;60/16
Enclosure rating		IP 54	IP 54	IP 54
Degree of protection with integrated air conditioning unit (internal/external)		IP 54 / IP 34	IP 54 / IP 34	IP 54 / IP 34

Overall Dimensions

		OZMa 1 O	OZMa 2 O	OZMa 3 O
Width	mm	1,114	1,114	1,114
Height	mm	1,961	1,961	1,961
Depth	mm	400	400	400

Weight

		OZMa 1 O	OZMa 2 O	OZMa 3 O
Weight	kg	220	230	250

Ozone Mixing

		OZMa 1 O	OZMa 2 O	OZMa 3 O
Max. raw water temperature	°C	35	35	35
Permissible pressure at ozone outlet	bar	0.8–2.0	0.8–2.0	0.8–2.0

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Specification of Operating Gas: Oxygen

		OZMa 1 O	OZMa 2 O	OZMa 3 O
Gas volume at nominal capacity 100 g/Nm ³	NI/h	1,050	1,580	2,100
Gas volume at capacity 150 g/Nm ³	NI/h	400*	600*	800*
Gas volume at capacity 80 g/Nm ³	NI/h	1,540	2,300	3,100
Concentration min.	vol%	90	90	90
Dew point max.	°C	-50	-50	-50
Pressure	bar	3 – 6	3 – 6	3 – 6
Max. particles	µm	5	5	5
Max. hydrocarbons	ppm	20	20	20
Max. temperature	°C	30	30	30

Cooling Water

		OZMa 1 O	OZMa 2 O	OZMa 3 O
Cooling water consumption (15 °C)	l/h	70	105	140
Cooling water consumption (30 °C)	l/h	115	175	400
Cooling water inlet pressure	bar	1–5	1–5	1–5
Cooling water inlet, PE pressure hose	mm	12 x 9	12 x 9	12 x 9
Cooling water outlet, open discharge	mm	12 x 9	12 x 9	12 x 9

Cooling water quality No tendency to form lime scale, no corrosive components, removable substances: < 0.1 ml/l, iron: < 0.2 mg/l, manganese: < 0.05 mg/l, conductivity: > 100 µS/cm, chloride: < 250 mg/l

* Output 150 g/Nm³ as special version must be factory-set

** Nm³= m³ at standard conditions (P = 1.013x10⁵Pa, T = 273 K)

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Ozone Generation Systems OZONFILT® OZMa 4-6 O (Operating Gas - Oxygen)

Ambient parameters

Max. 85% air humidity of the ambient air, non-condensing, non-corrosive, dust-free, max. ambient temperature: 40 °C (with integrated air conditioning system: 50 °C)

		OZMa 4 O	OZMa 5 O	OZMa 6 O
Number of generator modules		2	2	3
Nominal ozone capacity at 100 g/Nm³ ** and cooling water at 15 °C	g/h	320	420	630
Ozone capacity at 150 g/Nm³ *	g/h	180	240	360
Ozone capacity at 80 g/Nm³	g/h	370	490	735
Specific energy requirement at nominal capacity	Wh/g	9	9	9
Power factor at full capacity	cos φ	0.95	0.95	0.95
Ozone connection		Rp 3/8"	Rp 3/8"	Rp 3/8"

Electrical Connection

		OZMa 4 O	OZMa 5 O	OZMa 6 O
Connected load	V/Hz/A	400/50;60/16	400/50;60/16	400/50;60/16
Enclosure rating		IP 54	IP 54	IP 54
Degree of protection with integrated air conditioning unit (internal/external)		IP 54 / IP 34	IP 54 / IP 34	IP 54 / IP 34

Overall Dimensions

		OZMa 4 O	OZMa 5 O	OZMa 6 O
Width	mm	1,320	1,320	1,606
Height	mm	1,961	1,961	1,961
Depth	mm	605	605	605

Weight

		OZMa 4 O	OZMa 5 O	OZMa 6 O
Weight	kg	420	445	580

Ozone Mixing

		OZMa 4 O	OZMa 5 O	OZMa 6 O
Max. raw water temperature	°C	35	35	35
Permissible pressure at ozone outlet	bar	0.8–2.0	0.8–2.0	0.8–2.0

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Specification of Operating Gas: Oxygen

		OZMa 4 O	OZMa 5 O	OZMa 6 O
Gas volume at nominal capacity 100 g/Nm ³	NI/h	3,200	4,200	6,300
Gas volume at capacity 150 g/Nm ³	NI/h	1,200*	1,600*	2,400*
Gas volume at capacity 80 g/Nm ³	NI/h	4,630	6,130	9,190
Concentration min.	vol%	90	90	90
Dew point max.	°C	-50	-50	-50
Pressure	bar	3 – 6	3 – 6	3 – 6
Max. particles	µm	5	5	5
Max. hydrocarbons	ppm	20	20	20
Max. temperature	°C	30	30	30

Cooling Water

		OZMa 4 O	OZMa 5 O	OZMa 6 O
Cooling water consumption (15 °C)	l/h	200	280	420
Cooling water consumption (30 °C)	l/h	300	400	600
Cooling water inlet pressure	bar	1–5	1–5	1–5
Cooling water inlet, PE pressure hose	mm	12 x 9	12 x 9	12 x 9
Cooling water outlet, open discharge	mm	12 x 9	12 x 9	12 x 9

Cooling water quality No tendency to form lime scale, no corrosive components, removable substances: < 0.1 ml/l, iron: < 0.2 mg/l, manganese: < 0.05 mg/l, conductivity: > 100 µS/cm, chloride: < 250 mg/l

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