

AAG[®]



AIR & GAS FILTRATION, SEPARATION SOLUTIONS



OZONE GENERATORS



WHO IS AAG MAKINA?

AAG MAKINA is a firm specialized in Engineering Systems and industrial technology and also possesses advanced system integration.

AAG MAKINA manufactures and develops advanced systems for separation of gas from air for all fields of industry.

- ▶ Pressurized air dryers
- ▶ Pressurized air filters
- ▶ Desiccant air dryers
- ▶ Combined air dryers
- ▶ Active carbon towers
- ▶ Oxygen generators
- ▶ Ozone generators
- ▶ Nitrogen generators
- ▶ Automatic water drain systems

Above are the products we supply domestically and abroad.

WHY CHOOSE AAG TECHNOLOGY!

- ▶ AAG MAKINA PRODUCING THE LATEST TECHNOLOGY FROM 1986
- ▶ INNOVATIVE & PATENTED PRODUCTS IN THE WORLD
- ▶ LOCAL MANUFACTURER WITH THE MOST REFERENCES IN THE SECTOR
- ▶ EXPERT TECHNICAL STAFF ON THIS TOPIC IN BEFORE AND AFTER SALES
- ▶ EXPORT OVER 30 COUNTRIES / WIDE SERVICE NETWORK

PRODUCTION NORMS & QUALITY CERTIFICATES

- ▶ 2006/42/EC Machine Safety Directive
- ▶ 2014/30/EU Electromagnetic Compatibility Directive
- ▶ 2014/35/EU Low Voltage Directive
- ▶ EN 60204-1 2006+A1:2009/AC:2010
- ▶ EN ISO 12100 2010
- ▶ EN 61000-6-2 2005/AC:2005
- ▶ EN 61000-6-4 2007/A1:2011
- ▶ GB/T 19001 2016
- ▶ ISO 9001 2015
- ▶ DIN 19627 2018-01



OZONE GENERATORS

Ozone is a molecule comprised of three Oxygen atoms (O₃), it is a colourless gas with a distinct odour, this odour can be felt after stormy weather in high altitudes or by the sea shore. It was discovered by German chemist Christian Friedrich Schonbein in 1839. It has been used since for disinfection.

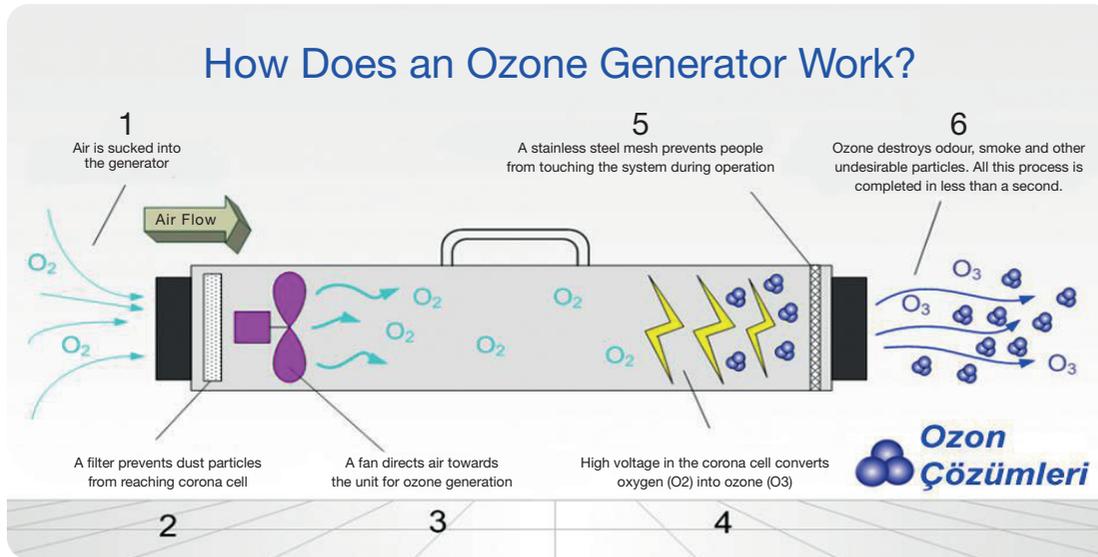
AREAS OF USE FOR OZONE GAS DRINKING AND WASTE WATER TREATMENT

Utilizing ozone for drinking and waste water treatment has become more preferable as the chemicals for these applications become more expensive.

In addition to its disinfective properties, ozone also neutralizes odour and taste and also helps chelate iron and manganese ions. Industrial waste water may contain colour molecular, phenols, cyanide ions, detergents etc. Ozone can also be coupled with other physical, chemical and biological procedures and can be quite successful in treating complex wastes. It also reacts with organic material in water to lower carbon content.



OZONE GENERATORS OPERATING PRINCIPLE



PLACEMENT SCHEME



OZONE GENERATORS TECHNICAL DATA

OZONE GENERATOR WITH AIR FEED

PARAMETERS	OZONCUBE 3A	OZONCUBE 5A	OZONCUBE 10A	OZONCUBE 15A	OZONCUBE 20A	OZONCUBE 25A	OZONCUBE 30A	OZONCUBE 40A
Ozone production (KG)	3	5	10	15	20	25	30	40
Ozone concentration	20-57.2 ml/L.1 - 4% wt							
Inlet Gas	AIR							
Inlet gas flowrate (Nm3/h)	107	178	356	534	712	890	1068	1424
Inlet-outlet gas pressure	0.1 - 0.5 Mpa / 0.05 - 0.1 Mpa							
Gas outlet connection	DN40	DN50	DN65	DN80	DN100	DN100	DN125	DN150
Ozone adjustment	10 - 100%							
Technical parameters								
Power supply	3 x 400V, 50/60 Hz							
Power consumption	14 - 16 KW/h/kgO3							
Power factor	95-99%							
Cooling	Water cooled							
Cooling water	2.5 - 3.5 Nm3/h							
Water temperature diff.	5 C							
Cooling water connection	DN50	DN65	DN80	DN100	DN125	DN125	DN150	DN200
Ambient temperature	5 - 40 C / Optimal between 24 - 35 C							
Relative humidity	Optimal <66%, Max <86%							
Protection class	IP42 - IP54							
Sound level (1 meter)	<66 dB (A)							
Dimensions								
Length (mm)	3100	3100	3100	4500	4500	4500	5400	5400
Width (mm)	2000	2100	2200	2300	2500	3300	4200	4500
Height (mm)	1900	2000	2100	2200	2300	2700	3500	3500
Weight (kg)	2600	4300	8200	10500	13500	18000	22000	25000

OUR COMPANY MAY CHANGE THE VALUES IN THE CATALOGUE ACCORDING TO THE RESEARCH AND DEVELOPMENT STUDIES.

OZONE GENERATORS TECHNICAL DATA

OZONE GENERATOR WITH OXYGEN FEED

PARAMETERS	OZONCUBE 300	OZONCUBE 500	OZONCUBE 1000	OZONCUBE 2000	OZONCUBE 3000	OZONCUBE 5000	OZONCUBE 8000	OZONCUBE10.000
Ozone production (g/h)	300	500	1000	2000	3000	5000	8000	10000
Ozone concentration	20-57.2 ml/L.1 - 4% wt							
Inlet Gas	Oxygen (O2)							
Inlet gas flowrate (Nm3/h)	2	3,4	6,7	13,5	20,1	33,3	53,5	66,6
Cooling water (m3/h)	0,5	0,8	1,5	3	4,5	7,5	12	15
Power consumption (KW/h)	2,1	3,5	7	14	21	35	56	70
Gas connection	3/4"	3/4"	DN25	DN25	DN25	DN32	DN40	DN40
Cooling water connection	3/4"	3/4"	DN25	DN25	DN25	DN40	DN50	DN50
Dimensions								
Length (mm)	1200	1400	1600	1800	2800	2900	3800	3800
Width (mm)	800	800	1100	1100	1100	1100	1100	1100
Height (mm)	1900	1900	2000	2000	2000	2000	2100	2100

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OZONE DESTROYER

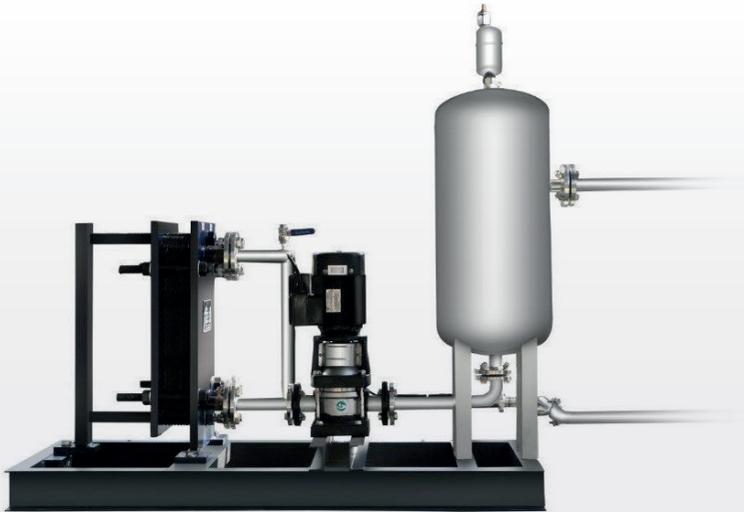


Model with analyzer

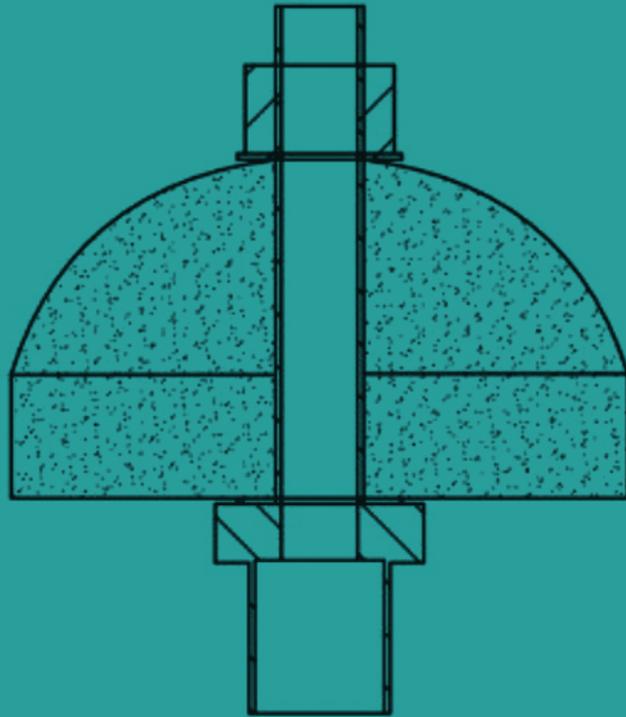


Model without analyzer

WATER CHILLER



OZONE DIFFUSERS



OZONE DIFFUSERS

AREAS OF USE

- ▶ Drinking water treatment
- ▶ Waste water treatment
- ▶ Process water

PROPERTIES

- ▶ More than 90% mass transfer
- ▶ Homogenous bubble formation
- ▶ Durable ceramic material
- ▶ Long service life with high stability
- ▶ Easy assembly
- ▶ No maintenance
- ▶ Accepted technology



Ozone has to be given to the environment immediately after production its generation. The most popular way to this is by using diffusers in the ozone chamber.

OZONE TECHNOLOGY

Ozone has to be given to the environment with the most efficient way. The most common way to do this is by utilizing half-sphere shaped diffusers at the bottom of a water tank. The number of diffusers depends on the amount of ozone generated as well as the shape of the tank. E.g. drinking water treatment is done by a lower number of diffusers and requires a smaller tank but waste water treatment may require a larger tank with more diffusers.

OZONE DIFFUSERS

WORKING PRINCIPLE

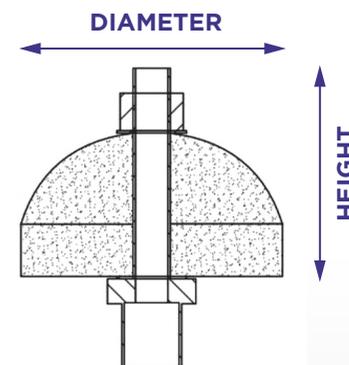
Ozone is taken rapidly to the tank after its generation. When pored diffusers are used to introduce ozone to a medium, these are generally placed at the bottom of the tank. This tank has 5-6 meters of hydraulic head. Working principle of the diffusers is to produce vast quantities of bubbles to increase surface area and therefore mass transfer.

DIMENSIONS

AAG CERAMIC DIFFUSERS	DIAMETER	HEIGHT
	mm	mm
	107	115

Flowrate at a pressure of 1.5 bar: 600 ~ 1200 lt/h

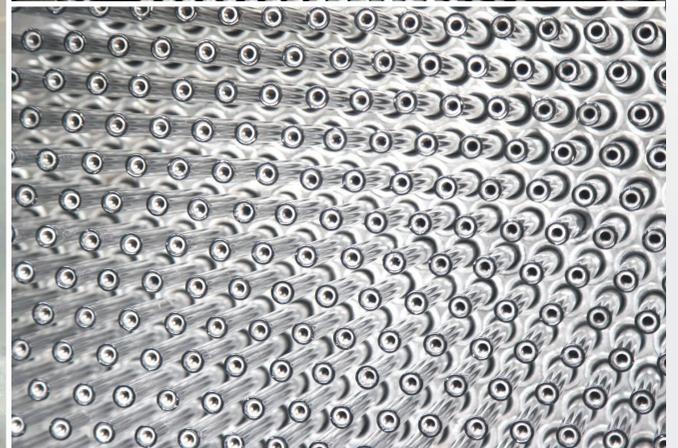
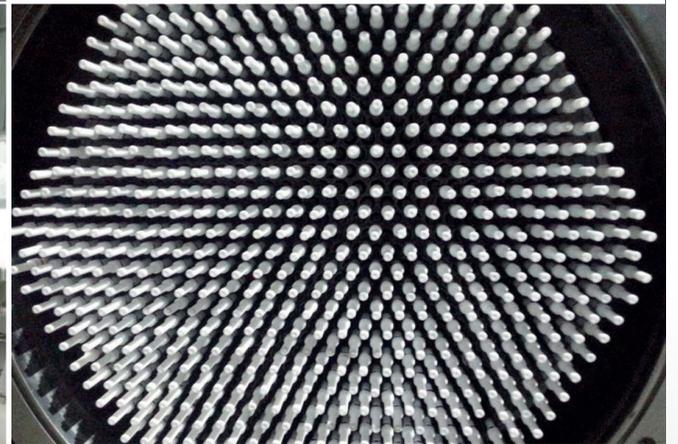
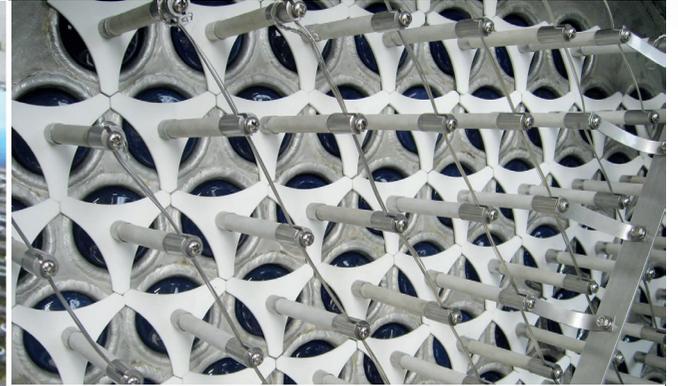
Suitable to weld to round and straight manifold pipes at the bottom of the tanks.



SAMPLE PROJECTS



SAMPLE PROJECTS



SAMPLE PROJECTS



REFERENCES



AAG[®]
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