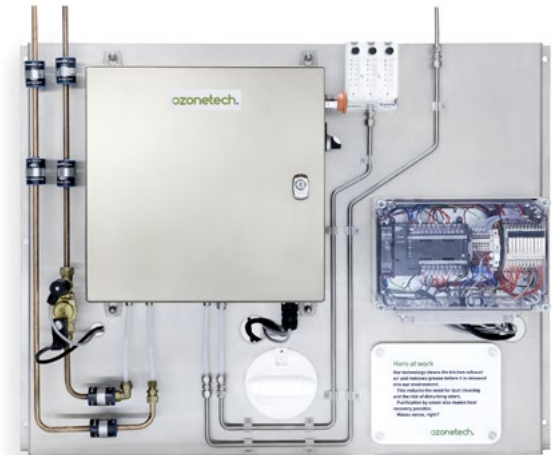
High-performance or low-performance?

Oxygen-fed or air-fed? The EU has made up its mind.

Dry oxygen or humid air? 6% nitrogen or 78% nitrogen? Does it matter what the ozone system is fed with?

Yes absolutely. According to the EUs new standard*, oxygen-fed ozone systems should be used for total extract air flows exceeding 2,500 m^3/h. The reason is that ozone generators fed with air produce too much nitrogen oxides. But there are many more reasons to choose oxygen-fed and liquid-cooled ozone systems. Below we have compiled the most significant differences.

*EN 16282-8:2017 Installations for treatment of aerosols



RENA Kitchen Solutions. High-performance.

Questions	Air-fed ozone generator (low-performance)	Oxygen-fed ozone generator (high-performance)
Is ozone production stable over time?	No, it varies with the feed air humidity and temperature	Yes, a major advantage with the RENA Kitchen Solutions is its stability over time
Stepless adjustable ozone production?	No, usually only on or off	Yes
Are a lot of nitrogen oxides formed?	Yes, the ozone generator is fed with air which contains 78% nitrogen - so you can't avoid it	No, the feed gas contains just 6% nitrogen
Can corrosion in the ozone generator be avoided?	No, the nitrogen oxide forms together with the moisture in the supply air nitric acid which turns into salt	Yes, because the feed gas is dry
Will ozone production decrease with time?	Yes, because of the salt build-up	No
How high is the produced ozone concentration?	Low	50-100 times higher than for air-fed ozone generation
How large airflows can be purified with a single ozone generator?	Up to 2,700 m^3/h	Up to 43,000 m^3/h
Do you need several ozone generators for large airflows (36,000-43,000 m^3/h)?	Yes, 9-12 ozone generators are needed	No, a single RENA is enough
How much air is needed to transport 1 g of ozone to the inlet duct?	1 600 times more than for an oxygen-fed ozone generator	1/1600 of the airflow required for an air-fed ozone generator

Read more on the next page

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Questions continue	Air-fed ozone generator (low-performance)	Oxygen-fed ozone generator (high-performance)
How effective is ozone production?	Low - to produce 1 gram of ozone 29,000 liters of 20 °C air is needed	High - to produce 1 gram of ozone 8 liters of dry oxygen is needed
The need for maintenance?	Usually serviced 2-4 times a year to keep the ozone elements clean	Small - supervision once a year
If the kitchen is expanded with a kitchen hood can the cleaning capacity easily be increased?	No, installation of another ozone generator is required	Yes, it is usually enough to change one component in the cabinet
Will there be more grease in the kitchen duct over time?	Yes, because the cleaning capacity decreases	No
Ozone is produced from oxygen. Which oxygen source is used?	Supply air is used which contains 21% oxygen, 78% nitrogen and moisture	An oxygen generator is used to produce dry pure oxygen
Which cooling method is used to handle the heat generated by the ozone generator?	The generator is cooled with 21-degree supply air which significantly limits its cooling capacity	The ozone generator is cooled with cold liquid. The cooling effect is 23 times as large as cooling with supply air - which ensures high performance
How is the ozone transported to the kitchen flue?	With 100-125 mm stainless steel pipes	With 8 mm hose
Can you easily insert the ozone exactly where you want it in the duct channel?	No, a stainless steel channel may not always fit	Yes, there is always room for a thin hose
Easy installation when there are several kitchens or kitchen hoods?	No, usually one ozone generator is needed for each ventilation duct. Each ozone generator needs permanently mounted stainless steel pipes to transport ozone to the hood	Yes, RENA can be installed anywhere and distribute ozone via 8 mm hoses to all kitchens and kitchen hoods
Where is the ozone generator installed?	It is mounted in the kitchen ceilings which complicates the necessary maintenance	It is wall-mounted and thanks to the hose distribution of ozone, it can be placed almost anywhere. We have performed installations where the distance from ozone generator to kitchen hoods exceeded 50 meters.
What about rebuilding and extension?	Existing ozone generators must be taken down, moved and remounted, and new generators be installed for each new hood - and new fixed stainless steel pipes installed	Existing 8 mm hoses needs to be moved and new hoses be installed for the new hoods
What does the EUs new standard say?	According to the EU's new standard*, air-fed ozone systems should only be used for small restaurants with total airflows below 2,500 m^3 /h.The reason is that they produce a lot of NOx - nitrogen oxides	For oxygen-fed and liquid-cooled ozone systems there are nothing limiting their use

** EN 16282-8: To safe-guard against NO_x and HNO_3 build-up in the extract air, an oxygen-fed ozone generator will be used for a total extract flow exceeding 2,500 m^3/h.*

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