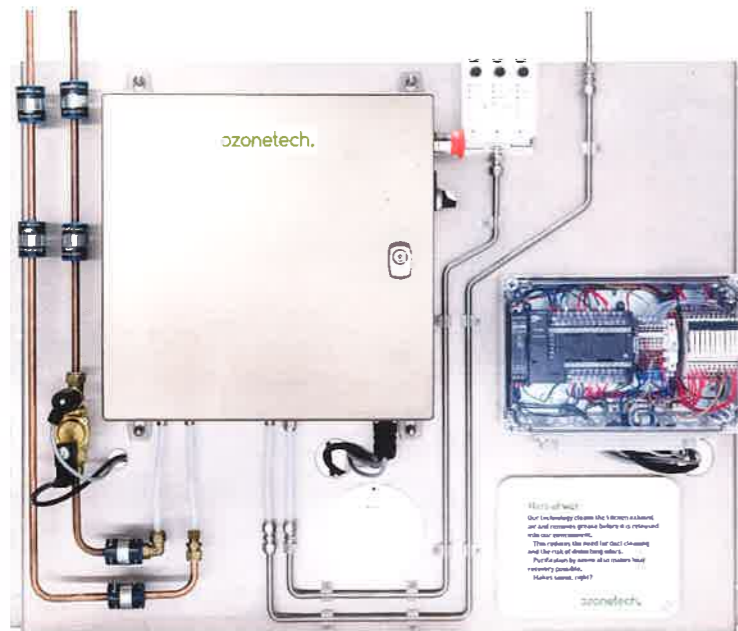


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later



Meets the requirements

RENA Kitchen Solutions is a high-performance ozone system – i.e. ozone is produced from dry, pure oxygen instead of humid ambient air containing 78% nitrogen. RENA systems are characterised by their high cleaning capacity, reliability, low operating and maintenance costs and, above all, enabling very high heat recovery rate in commercial kitchen ventilation systems.

RENA is specifically developed for air treatment in commercial kitchens. Here are some of the requirements we set when we developed RENA (and which you should also ask for):

- Capacity to remove air-borne grease during high airflows
- Capacity to treat air with high grease content
- Stable and consistent treatment capacity
- No components installed in the air flow
- Ability to prevent grease build-ups in ducts
- Does not disturb the ventilation balance
- High operational reliability
- Minimum maintenance requirement
- Minimum service requirement
- Minimum requirement for manual cleansing of ducts
- Low energy usage
- Low operational costs
- Minimum lifespan of 20 years
- Lowest total cost of all purification technologies over time
- The purification system should turn on/off when the ventilation system turns on/off
- Stepless variable treatment capacity
- Easy adjustment of treatment capacity
- Easy to upgrade the system's total capacity
- Simple to install the distribution of the ozone – even when the ducts are difficult to access
- The ozone distribution should not interfere with the activities of the kitchen nor be aesthetically disturbing
- The ozone system should be able to be installed where it is out of the way of the activities being undertaken in the premises
- Remote 24/7 monitoring to detect any interference
- The system should include an ozone sensor which turns off the system if ambient ozone levels exceed set threshold. The sensor shall be supplied with a uniquely traceable calibration certificate
- One single system should be able to treat several kitchens in, for example, a food court
- For larger projects with high treatment requirement, several ozone systems should be able to be installed together
- Comply with requirements of EN 16282

EN 16282

New EU standard for ventilation in commercial kitchens

Stricter quality requirements and competition on equal terms

You are always welcome to contact us if you have any questions about the standard or are interested in our solutions and ozone treatment in general.

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Smart demands for increased quality, safety and a greener world

EU's new standard for equipment in commercial kitchens is long-awaited and well-produced. It covers everything from the hood to the point of discharge. The work took 14 years and aims to harmonise competition within the EU as well as setting quality requirements for functionality, safety and the environment.

Air purification technologies are described in part 8 where requirements are defined for equipment for treating kitchen extract air. The air treatment reduces fire risk as well as odours. It is also a prerequisite for installing heat exchangers in the extract air stream for heat recovery.

The methodology is now spreading in Europe and will considerably reduce energy consumption and carbon dioxide emissions. A driving force is the Ecodesign Directive, which states that products for heat recovery shall have a minimum thermal efficiency of 73% as of 1st January, 2018.

We have read through the standard and what follows is a summary of how some of the treatment technologies are affected.

The eight parts of the new EU standard EN 16282*

1. General requirements
2. Kitchen ventilation hoods
3. Kitchen ventilation ceilings
4. Air inlets and outlets
5. Air duct
6. Aerosol separators
7. Fixed fire suppression systems
8. Installations for treatment of aerosol; Requirements and testing

*EN 16282 Equipment for commercial kitchens. Components for ventilation in commercial kitchens. The EU standard EN 16282-8 can be obtained from your National Organization for Standardization

The Ecodesign Directive - a focus on energy usage

The Directive was adopted by the EU in 2005 and is aimed at reducing energy usage, and thereby greenhouse gas emissions by 20%.

General requirements for purification techniques

- For technical safety reasons components in the air stream shall be designed to withstand a constant temperature of at least 60 °C. Cooling may therefore be required of extracted air
- The installation shall be easy to access for the purposes of maintenance and cleaning work
- Components in contact with UV radiation or ozone should be made in suitable materials
- If ozone is released at ground level, concentrations shall be below the applicable limit values
- If ozone sensors are used, they shall be labelled "OZONE SENSOR" and have a unique traceable calibration certificate
- Connections between the ozone generator and the grease duct must be labelled "OZONE" every ten metres

New requirements for UV equipment (ozone treatment based on UV lamps)

- The efficiency of a UV lamp is dependent on the temperature. For this reason, the maximum temperature specified by the manufacturer should not be exceeded. Installation of cooling measures may be needed.

- The UV device shall be installed in such a way that the entire extract air volume flows past the UV lights. If necessary, suitable measures shall be taken.
- Safety equipment should exist that prevent UV radiation from having any effect on skin or eyes
- Flow/pressure sensor(s) shall ensure that ozone does not escape into the kitchen
- Hoods equipped with UV lamps shall carry a visible warning sign: "WARNING — UV radiation"
- Inspection hatches on the grease duct shall carry a warning sign that reads: "WARNING — Ozone Treatment"

New requirements for ozone generators

For ozone generators fed with oxygen (for example, our high-performance RENA system), there are now several new smart requirements.

- Installation, repair and maintenance shall be carried out by personnel trained by the manufacturer
- The ozone generator must only be operated when the exhaust fan is running
- Suitable equipment, such as flow/pressure sensor(s), shall ensure that ozone is not released into the building. If the system is equipped with a pressure sensor, it needs to be set up so that the ozone system is shut down should the pressure drop below 20 Pa
- Inspection hatches on the grease duct must carry a visible warning sign: "WARNING - Ozone Treatment"

New requirement for air-fed ozone generators

In addition to the general requirements for air treatment technologies and ozone generators, the standard specifies that oxygen-fed ozone generators shall be used for total extract flows exceeding 2,500 m³/h. The reason for this is that air-fed ozone generators produce too much nitrogen oxides and nitric acid.

The standard states:

NOTE To safe-guard against NO_x and HNO₃ build-up in the extract air, an oxygen-fed ozone generator will be used for a total extract flow exceeding 2500 m³/h.

New requirements for photocatalytic air treatment (often called ozone-free UV light cleaning)

- F9 filters shall be fitted prior to the photocatalytic system. The filter must be resistant to ozone and UV. The filter shall not be fitted in the hood/ceiling
- For UV lamps, the maximum temperature specified by the manufacturer should not be exceeded
- Hoods fitted with UV lamps shall carry a visible warning sign: "WARNING — UV radiation"
- Inspection hatches on the grease duct must carry a warning sign: "WARNING — ozone treatment"

Note! As this technology contains both UV and ozone, the requirements for each treatment technology must also be taken into account.



E-Prize is Sweden's leading energy prize and Ozonotech was awarded as the winner in October 2017 in the Energy Efficiency category. Seal of Excellence is EU's quality label "for first-class innovation ideas worthy of investment". We were awarded the Seal of Excellence in the spring of 2017. Gazelle companies grow quickly, profitably and organically. We were awarded as a Gazelle Company both in 2016 and 2017. In addition, we received the Pioneer of the Year award in 2015, bestowed on us by H.M. King Carl XVI Gustaf of Sweden.