

**Choose  
the right  
method!**

**Regarding the EU's Ecodesign Directive and the new EU standard  
for commercial kitchen ventilation**



Authentic photograph from exhaust duct in restaurant

**Grease prevents energy recovery**

**Grease causes fires**

**Grease has an unpleasant odour**

# **The grease must be removed**

**Otherwise energy will continue to be wasted in Europe's  
restaurants and commercial kitchens**

**ozonetech.**

# In purely theoretical terms, how do you recover the greatest amount of energy?

Are you planning to recover the heat from the kitchen exhaust ducts? Then you might as well invest properly in doing just that. Here are a few tips on how to recover the maximum amount of energy.

## Buy a high-quality heat exchanger

Put a lot of energy into your choice of heat exchanger. Choose a reliable model with a high efficiency rating, and then do everything you can to prevent it from losing efficiency. It must be able to work under ideal conditions – at all times. Only then can you recover the maximum amount of energy year after year.

## Remove as much grease as possible before the air reaches the heat exchanger

Make sure the air that reaches the pre-filter of the heat exchanger is as clean as possible at all times. This is important, as large amounts of grease have a number of negative effects. They cause a drop in pressure in the exhaust duct. The efficiency of the heat exchanger is reduced. Heating costs increase. The pre-filter has to be replaced more often. And the heat exchanger has to be cleaned more frequently.

## Understand the advantages and drawbacks of the various technical methods – and make the right choice

The hot grease-laden air travels at 3–5 m/s on its way to the heat exchanger. Which method is most effective at removing the billions of small grease particles and aerosols that rush out in the current of air? Which solution will manage to keep the exhaust duct clean all the time?

Here are the four main treatment methods.

- Insert more mechanical filters in the exhaust duct to trap the grease

- Position active equipment in the air flow to break down the grease as it passes (e.g. UV light treatment and photocatalytic treatment)
- Position equipment in the supply air flow that produces something that accompanies the air current and breaks down the grease (e.g. air-fed ozone generators)
- Introduce something into the air flow that accompanies the air current, breaks down the grease and then disappears (e.g. ozone from oxygen-fed ozone generators)

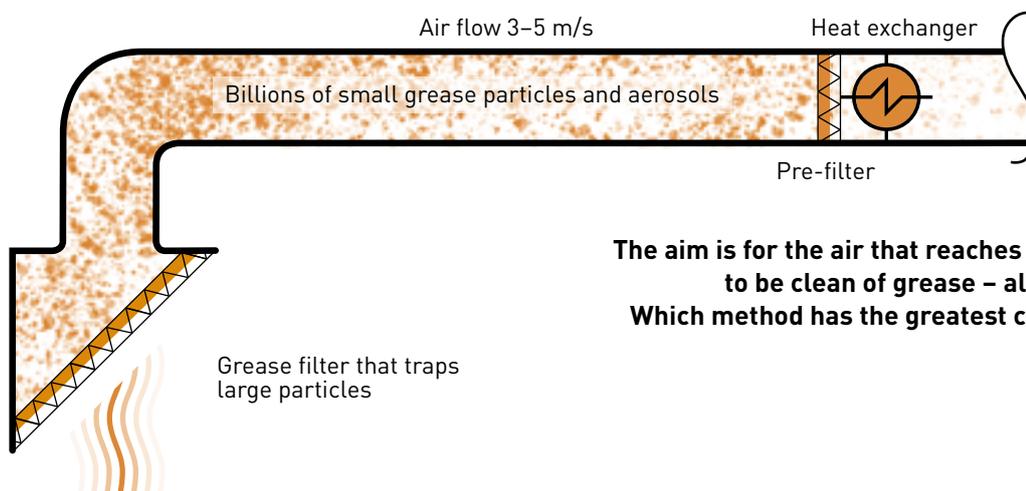
## Impose demanding requirements on the treatment solution

The purpose of the treatment solution is to minimise the amount of grease that reaches the heat exchanger. These are the requirements we think should be met by a really good solution.

- It must remove a high proportion of the grease particles and aerosols in the air current
- Any reduction in treatment capacity over time must be no more than marginal
- The need for service, maintenance and other ongoing handling must be minimal
- The treatment solution must not be the cause of operating outages, a drop in pressure or generally impact on the ventilation as a whole
- The treatment must work so well that the exhaust duct rarely requires manual cleaning
- It must be easy to reduce and increase the treatment capacity

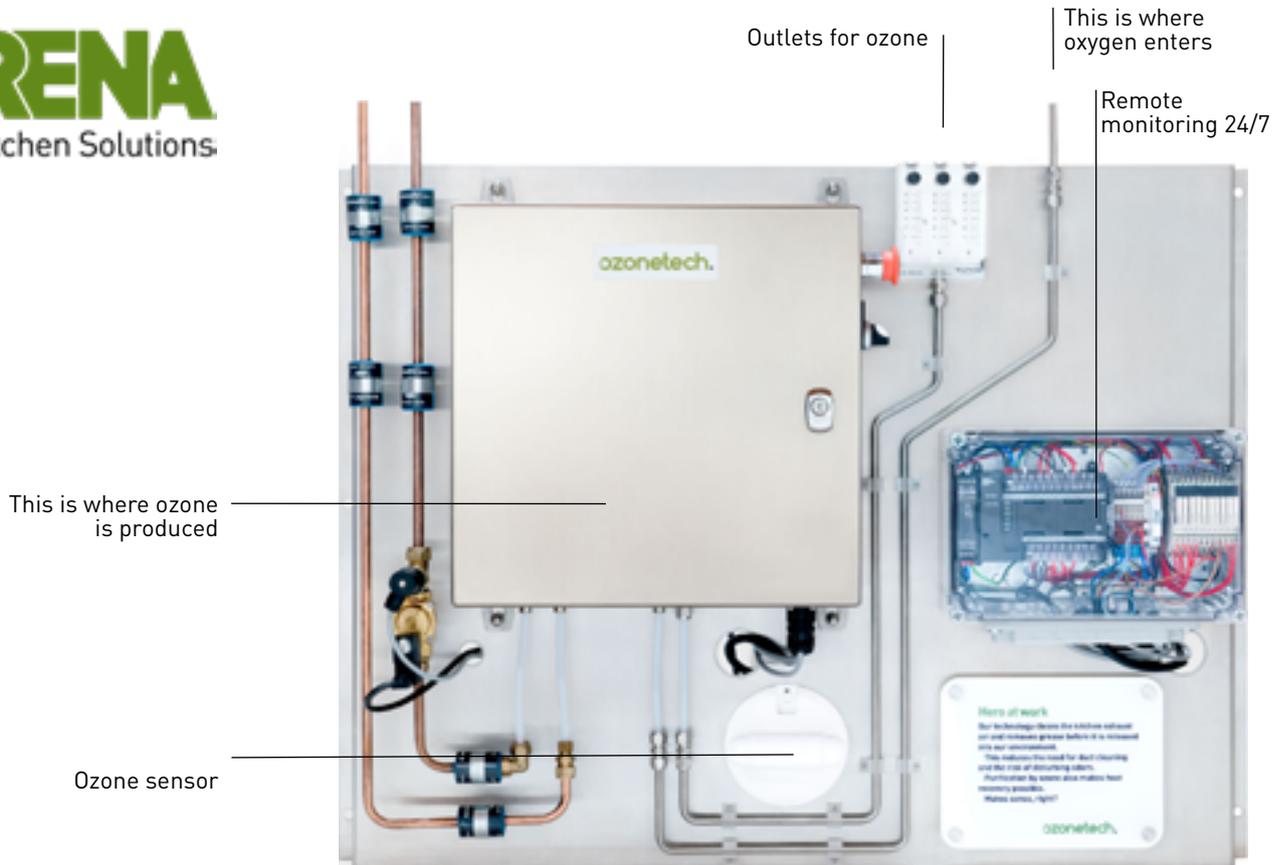
## Our recommendation

Avoid active and moving parts in the exhaust duct and hood. If equipment is positioned in the contaminated air flow, treatment capacity will be reduced more quickly, and it will require more maintenance, cleaning and spare part replacement.



**The aim is for the air that reaches the heat exchanger to be clean of grease – all the time.**

**Which method has the greatest chance of success?**



**What does high performance involve?** Just one RENA™ can treat air flows with medium grease content of up to 43,000 m<sup>3</sup>/h. Two systems are enough for big food courts. The high treatment capacity is due to the fact that we make the ozone from dry, pure oxygen and cool the ozone generator with cold fluid. Being oxygen-fed, the generator is also extremely reliable.

**This is how we make ozone**

First we produce dry, pure oxygen on site. We then use this directly to generate the ozone, without storing the oxygen. In this way, we avoid the problems that occur if you generate ozone from moist, nitrogen-rich air at room temperature.

**Green raw material that costs nothing**

We use air as the raw material. Nothing needs to be bought. No transportation. No storage. No handling. No refilling. No waste. No residues. Any ozone that is left over reverts to oxygen.

**Low operating costs**

The RENA system's power rating is normally 0.5–1.0 kW. An ozone sensor is a recommended accessory, and a Premium Service Agreement

also includes remote monitoring 24/7, life-time warranty, free replacement parts and a service inspection once a year\*.

\* Local variations may occur

**Low overall cost**

With RENA, the overall cost over time will be less than for other treatment methods. RENA is also a competitive solution for small air flows, thanks to its low operating, service and maintenance costs. And our customers also get peace of mind, as they have chosen a system that works. Help reduce energy consumption and overall carbon dioxide emissions in the EU. Buy a high-quality heat exchanger and treat the exhaust air with RENA.

■ **Fact**

Properties account for 40% of energy consumption and 36% of carbon dioxide emissions within the EU.

■ **Fact**

You can recover up to 70% of the heat energy from your cooking hobs. Depending on the size of property, heating costs can be reduced by 20–70%.

■ **Fact**

The EU requires that products for energy recovery have thermal efficiency of at least 73% from 1 January 2018.

■ **Fact**

The EU has now released EN 16282-8, a new standard for air treatment in commercial kitchen ventilation.

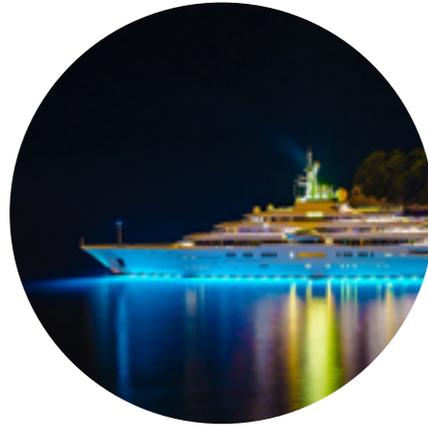
# We clean the environment on land and sea all over the world

We have now installed more than 1,000 RENA™ systems. They treat everything from fast food outlets and luxury restaurants to food-courts and corporate canteens. Here are two installations of a slightly special type.



## Stockholm

Mall of Scandinavia is the first shopping centre in Sweden to gain the Breeam Excellent rating. We were handpicked by owner Unibail-Rodamco and took care of everything from planning and design to installation of our RENA systems in all restaurants. Today, Mall of Scandinavia saves 6 GWh of electricity a year, thereby reducing its carbon dioxide emissions by 2,000 tonnes a year.



## The Atlantic Ocean

The crew of the Eclipse were not happy with the air treatment system in their kitchen. It was inefficient and often had to be turned off for maintenance and to replace parts. The fact that the 163.5-metre-long yacht was often somewhere out at sea did not make the situation any better. We flew down to the Riviera and fitted a RENA system instead, which since then has done its job without any problems.

## About Ozonetech

Ozonetech is an award-winning cleantech company that has offered premium products for air and water treatment since 1993.

Our unique technology and extensive expertise has made us a rapidly growing global company with installations on six continents. All development and manufacturing is located in Sweden. In addition, we have in-house specialists for consultation, planning, installation and service.

As a Center of Excellence within air and water treatment, we also collaborate in international efforts to develop global

standards for purification solutions.

At Ozonetech, we have a strong incentive to reduce energy consumption, health risks and the impact on the environment. Our current solutions provide a multitude of benefits in the processing and food industry, real estate, commercial kitchens as well as in the retail market.

For additional information, visit our website at [www.ozonetech.com](http://www.ozonetech.com)

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