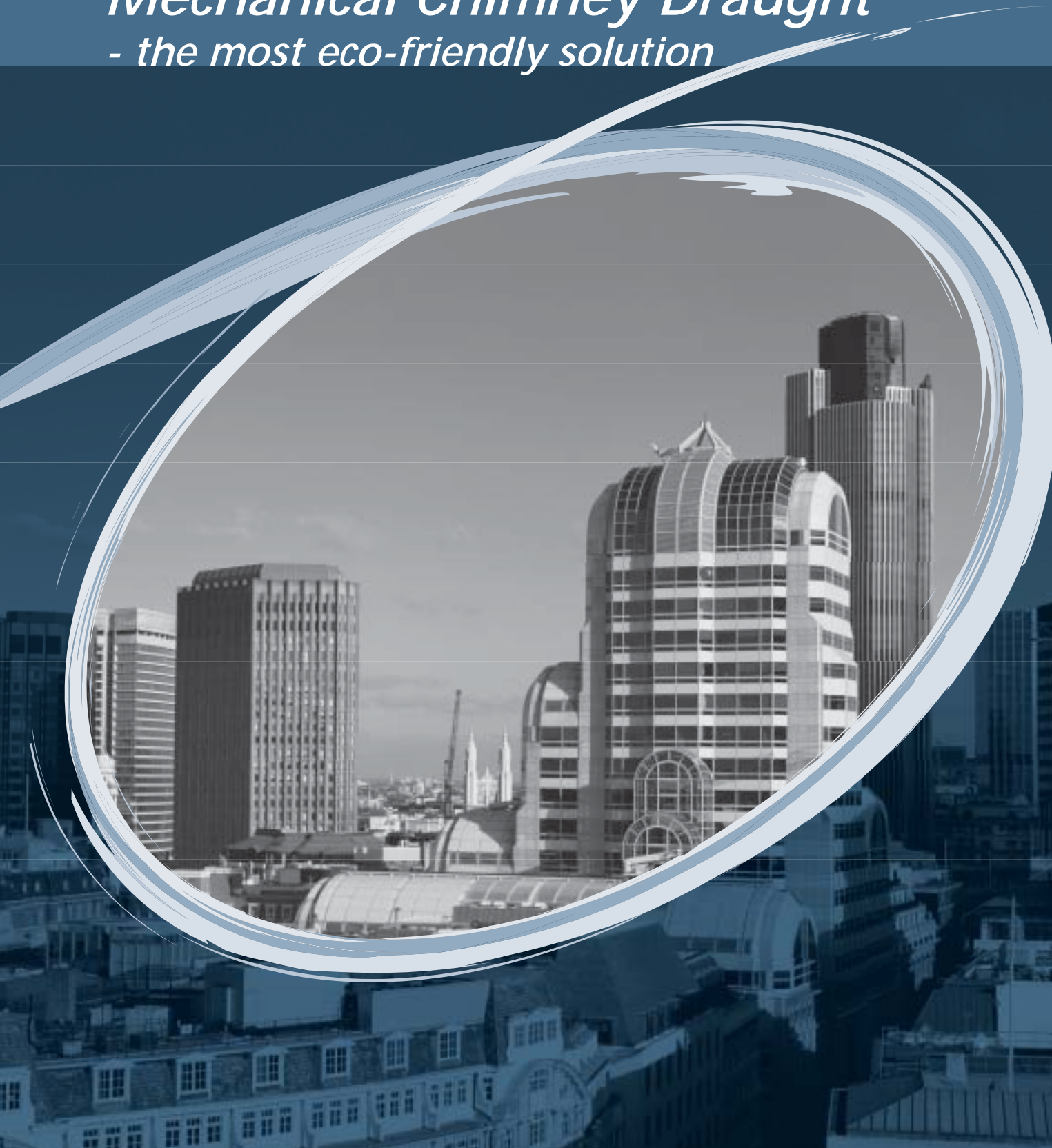




# *Mechanical Chimney Draught*

*- the most eco-friendly solution*



**EXHAUSTO**

FOR A BETTER FLOW



# Mechanical Chimney Ventilation - financial and environmental benefits

Heating appliances are being developed to meet demands for high efficiency and low CO<sub>2</sub> and Nox emissions. The function of the chimney is to control the removal of the hot flue gases and to provide oxygen for the combustion process. Sadly, the chimney is the last remaining part of the modern heating system expected to perform as it has done for centuries – based on natural draught. Yet it would be wrong to think of the chimney merely as "the passive exhaust system for the heating appliance". Both the construction of the chimney and a number of everyday factors influence the performance of natural updraught. The chimney must be designed to match the heating appliance and ensure the correct chimney draught under all conditions. Mechanical chimney draught that can be adjusted is the simple solution that always works.

## Savings both in refurbished and new buildings

A mechanical chimney draught system ensures a correct, constant, negative pressure, thereby enabling the chimney to work properly under all conditions. In connection with refurbishment or new build, large savings on flue systems and installation cost are available as the downsizing of flue diameters and chimney heights becomes possible. The fan at

### The chimney circulation pump

For many years we had problems with central heating systems. The solution was the introduction of the circulation pump. Mechanical chimney draught offers similar benefits to the circulation pump:

- Down-sizing of flue diameters
- Freedom in siting of boilers and fireplaces
- Safe operation with fail-safe supervision

In addition, this leads to improved boiler efficiency and reduced CO<sub>2</sub> emissions per heating unit. Today's mechanical chimney draught systems generate considerable financial benefits as well as eco-friendly solutions.

the chimney outlet ensures an under-pressure in the entire system. The aesthetics of the building can be improved as tall chimneys secured with wires can be avoided. Finally, efficient chimney ventilation minimises the risk of condensation and the build-up of soot in the chimney.

## Problems solved before they occur

Heating appliance design, its size and location, plus chimney height and diameter and several other factors influence buoyancy in a chimney.

### Weather conditions

When the ambient temperature rises, the outside air becomes lighter. This reduces the specific gravity difference between the outside air and the flue gases, reducing buoyancy. Barometric pressure differences will influence the chimney draught, since the pressure has a different effect on cold air compared with the hot flue gases. In addition, different wind directions can have a negative influence on the natural chimney draught.

### Boiler efficiency

Boiler efficiency has gradually increased through various technical improvements, which have brought the CO<sub>2</sub> % closer to optimum combustion. When the CO<sub>2</sub> increases, the flue gas volume is reduced as less air is provided during combustion. The increased efficiency of the boiler has led to a reduction in the flue gas temperature.

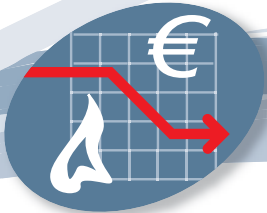
### Energy consumption

Focus on energy consumption has resulted in better insulation in buildings and reduced heat consumption.

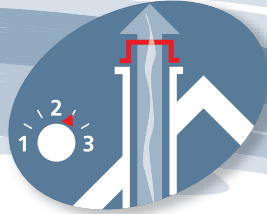
Boilers are used less, resulting in a drop in the average temperature within the chimney. These three factors - less flue gas volume, higher CO<sub>2</sub>% and lower flue gas temperature - all result in difficult working conditions for the chimney system based on a natural draught chimney.

A demand-controlled mechanical chimney draught system ensures the correct draught with optimum combustion and eliminates the risk of spillage.

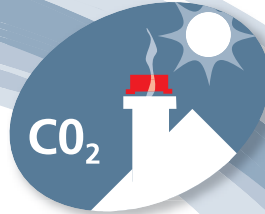
Problems are eliminated before they occur.



Reduce heating costs  
Energy efficient



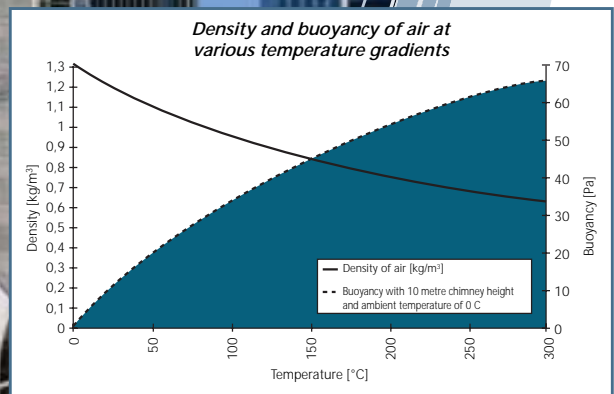
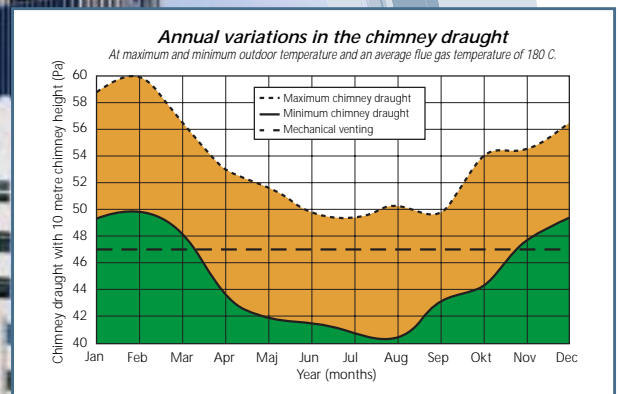
Control the draught



Environmentally friendly



Low cost establishment



It is evident that the ideal conditions for combustion cannot be available 365 days a year unless mechanical venting controls the chimney draught.

# Mechanical Chimney Draught - a guaranteed solution for customers and the environment

EXHAUSTO is the leading company in the market of mechanical chimney draught. Over the years we have developed the expertise that enable us in this highly specialized market to provide customers with problem solving solutions that are not only financially attractive but also beneficial to the environment.

## Smoke problems in public houses in the UK

One of the features of many refurbished pubs is the large open natural fireplace. Often the mechanical ventilation system in the pub and in the kitchen creates a negative pressure leading to smoke spilling into the room instead of going up the chimney. Lighting the fires is difficult resulting in many fires never being used.



## A solution to suit both the brewery and their customers

The installation of our EXHAUSTO Chimney fan with a separate heat sensor and control unit is the solution now being specified by many breweries. The control unit with heat sensor has made lighting fires very simple and safe. The heat sensor at the top of the chimney guarantees the correct chimney draught. It also ensures that the chimney fan runs 45 minutes after the fire has died out thereby drying out the chimney, preventing the build-up of soot and reducing the risk of chimney fires.



## Draught problems in the fireplace

A hotel in Scotland was experiencing draught problems in its very large and attractive open fireplace, which formed a natural part of the decor in the reception area. Because of the risk of spillage it was used only for displaying antiques and dried flowers. Staff had difficulty explaining to guests why the fireplace was never lit, so it was decided to find a solution.

## A solution with several benefits

Without changing anything else, a chimney fan was installed. A control panel was fitted on the wall next to the fireplace to manually regulate the chimney draught. When the fire is lit, the fan is switched on at full speed, as soon as the fire creates some natural updraught the fan speed is reduced.

When the fire dies down, staff can either turn off the chimney fan or let it run to help ventilate the reception area, which has never had mechanical ventilation. The chimney fan thus solved two important problems for the hotel owner and the guests.

## Spillage of flue gases creating problems

After a number of domestic gas boilers in an apartment block in Germany had been installed, the certified chimney sweep reported spillage from several of the boilers into the apartments. Additionally condensation leaked from the chimney through the walls into the apartments. The relatively low flue gas temperature caused the problems. A chimney opening of only 140 mm x 140 mm made lining of the chimney impossible.

## Simple, efficient solution with constant chimney ventilation

Now the chimney is ventilated constantly by means of chimney fan system, thereby avoiding damage from dewpoint condensation. The chimney fan is controlled with constant pressure regulation that modulates the fan speed so that a preset under-pressure is maintained throughout the entire flue system irrespective of the number of boilers in use.

A simple, but efficient and energy-saving solution that took very little time to install and, as an added bonus, is almost maintenance free. The mechanical chimney draught system is at the same time used for ventilation of the kitchens and bathrooms.



*Mechanical chimney draught is the perfect problem solver for both commercial and domestic installations.*

### **Carbon monoxide spillage in school boiler rooms in England**

At the beginning of the heating season the maintenance company servicing the six boilers in the school's boiler room discovered carbon monoxide spillage from several of the boilers. Due to the location of the boiler room being inside the building, installation of a complete new chimney and header system would have been expensive.

At the same time, it would have meant shutting down the boilers for several weeks in October.

### **An automatic chimney draught system with integral fail-safe solved the problem**

Without changing the existing flue and chimney the EXHAUSTO chimney automation system was installed, and in a very simple and inexpensive way the problem was solved in a matter of days.

The chimney fan is connected to an automatic control system which modulates the fan speed according to the flue gas volume and resistance in the header whilst at the same time supervising the fail-safe system.

# *A focus on documentation, product range and technological know-how*

Both the chimney fan and system controls have been carefully documented in accordance with applicable standards. All products for gas fires feature special fail-safe systems approved by Gastec B.V.

All systems are developed to meet international and local standards.

## **Special fan selection programme**

EXHAUSTO has developed a computer selection programme for chimney calculations based on the relevant international standards.

The selection programme, the detailed product documentation and the complete chimney system appraisals, all form an integrated part of our customer service concept. EXHAUSTO are happy to provide a free fan selection and system evaluation based on our extensive expertise in the design of mechanical chimney draught systems.

*With more than 25 different models it is always possible to recommend a chimney fan and control system that meets any customer demand.*



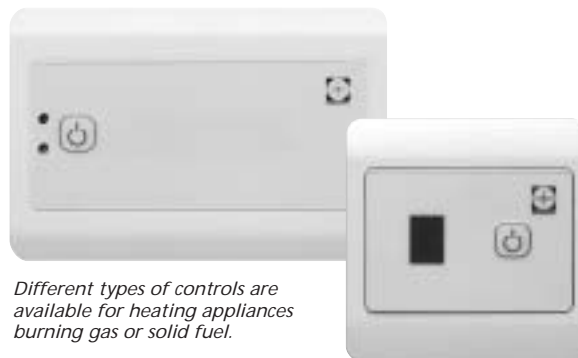
## *Advanced, easy to use technology*

EXHAUSTO's mechanical draught systems consist of a high quality chimney fan and specially designed control systems. The chimney fans offer capacities which will cover any heating appliance from small domestic fireplaces to larger commercial/ industrial boiler installations. Systems are available for solid fuel, gas or oil.

EXHAUSTO chimney fans are manufactured in two basic versions with either horizontal or vertical discharge. Site conditions and type of heating appliance determine the correct fan selection. In addition, a range of wall fans are available for gas appliances.

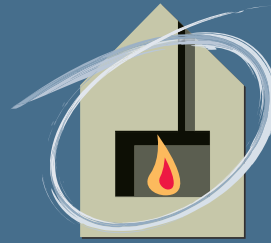
Automatic control systems are available from simple manual speed controllers to control systems which interlink with

multiple boiler systems. All products and controls are supplied with a two year warranty. A full 30 day money back guarantee is valid if EXHAUSTO has recommended the chimney fan system. If you are not happy with the performance simply return the product for a full refund.



*Different types of controls are available for heating appliances burning gas or solid fuel.*

# EXHAUSTO manufacturing based on more than 40 years of experience



Chimney solutions for fireplaces and stoves



Fans used on boiler systems

Smoke extractors for improving chimney draught. They allow for easier, smokeless lighting, while improving fuel consumption.

Fans used on boiler systems improve reliability and fuel consumption and eliminate spillage.



Today EXHAUSTO manufactures a wide range of products from ventilation fans and MVHR systems to domestic and industrial chimney fans. But it all started more than 40 years ago with the first chimney fan in the world.

Nowadays a special division concentrates on the development of the chimney draught technology. The business concept is based on customer demands. It is our task to develop new products and system solutions for mechanical chimney draught to meet customer requirements.

The division is intensifying research and development in flue gas extraction and leading the way in creating awareness of mechanical chimney draught in Europe and USA. The solutions available today are often used as a last resort in problem solving when natural draught is inadequate.

The reason is a lack of knowledge of the significant additional advantages the systems offer. For example, increased safety, large savings on flue systems and installation costs, and in many cases savings on fuel can all be obtained.

The chimney fans are cast in our own aluminium foundry using recycled aluminium and are manufactured using our own motors.

EXHAUSTO is certified under the ISO 9001 standard. This means that our customers and business partners have the best possible guarantee of uniform quality with respect to development, design, production, delivery and service.

Our reliable chimney fans have a long service life and we have documented examples showing them to be in service for up to 25 years.

# *Mechanical chimney draught - a solution with many advantages*



Mechanical chimney draught offers both financial and environmental gains and prevents many potential problems that can be a nuisance or even dangerous to health and safety. This applies to problems such as:

- Poor combustion
- Condensation
- Chimney fires
- Spillage of carbon monoxide
- Problems with lighting fires
- Build-up of soot
- Fail-safe lockouts of gas appliances

Today it is hard to imagine a central heating system that is expected to work based on gravity circulation.

There is no reason why the design of flue systems should not follow the same route as central heating systems with flue diameters downsized, greater freedom of boiler siting, and safe operation. The down sizing possibility alone will often pay for the extra investment.

This leaflet contains information about the financial and environmental gains to be obtained with a reliable, individually specified chimney fan solution.

Please contact the chimney draught specialists at EXHAUSTO for additional information and professional advice.

## **EXHAUSTO Ltd.**

Unit 3, Lancaster Court  
Coronation Road  
Cressex Business Park  
GB-High Wycombe - HP12 3TD

Tel. 01494 465166  
Fax 01494 465163  
info@exhausto.co.uk  
www.exhausto.co.uk

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