



Britannia  
Kitchen Ventilation

in partnership with

Cheetah   
Energy Control

Demand based  
ventilation control for  
commercial kitchens



Cheetah saves energy by controlling the extract and air supply fans in line with demand. Energy savings of up to 80% are typically achieved.

## The next generation of commercial kitchen ventilation control

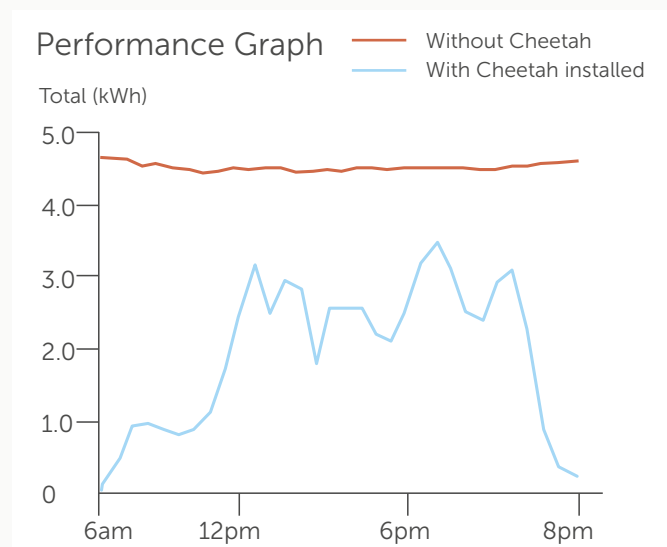
The extraction of waste heat, odours, fumes and combustion products in commercial catering constitutes a major demand for energy. This energy demand is increased further with large quantities of conditioned air being lost to the atmosphere and replaced unnecessarily by inefficient ventilation systems.

Cheetah is equally at home as either a retrofit or new build solution and works by controlling ventilation fan speeds such that extract rates are matched with cooking demands, hence optimising energy use.

The patented Cheetah system works on the principle of the "Affinity Laws for Centrifugal Loads", the result of which is that a fan running at 40% of its normal operating speed will only consume 6% of the energy required to run the fan at 100% of its operating capacity.

Variable speed drives are mandatory for the control of larger extract fans (Building Regulations Parts F & L). In commercial catering zones Cheetah controls these drives effectively and efficiently to safely minimise energy usage.

Cheetah's monitoring of carbon dioxide levels and control of ventilation within the commercial kitchen aids compliance with Health and Safety regulations

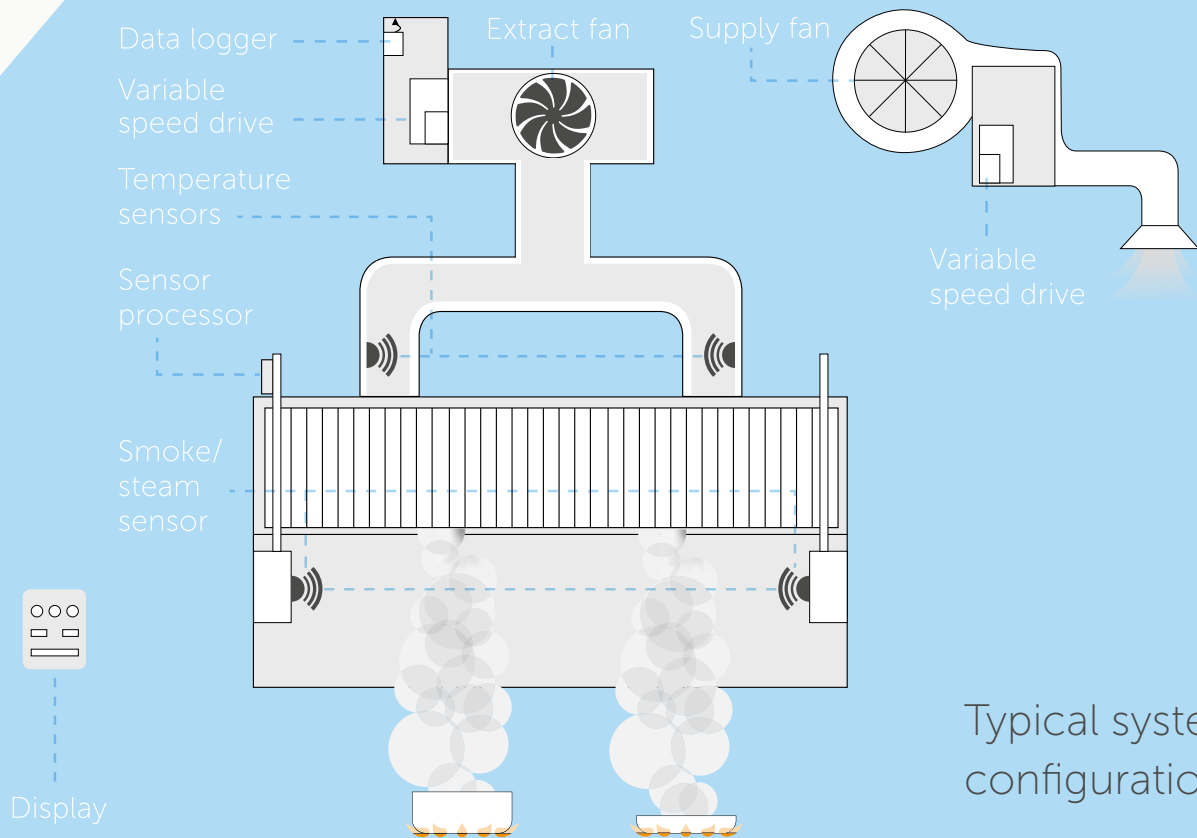


To maximise energy reduction, fresh air supply is controlled by Cheetah in the same way as extraction, providing maximum energy savings and a comfortable working environment in the kitchen.

Cheetah is the leading demand based ventilation control system in the UK for commercial kitchens

Controlling the extract and supply fans together ensures that they run at the lowest speed possible and ramp up only when cooking occurs, minimising energy usage whilst maintaining comfortable and safe conditions.

Cheetah is an effective way to save energy with most installations achieving a return on investment in less than 2 years



Typical system configuration

## How Cheetah works

Cheetah consists of a number of intelligent modules which are interconnected by a data communications network. A typical configuration is shown above.

The standard modules are:

- Display processor with system power supply and override facility
- Sensor processor
- Data logger with GPRS remote access system
- Temperature sensors (located in ducting)
- Optic sensors detecting smoke and steam (located in extract hood)
- Air flow meters in ducts (optional)
- Carbon dioxide sensors (optional)

With Cheetah operating in normal mode, the system's sensors control the fans. The fans are set to a minimum speed by default but automatically increase in the event of smoke, high temperatures in ducts, low air flow in ducts and high levels of carbon dioxide, in the kitchen.

The system is configured and operating parameters are set at installation. Cheetah is completely configurable and has various operating modes and settings which are tailored to suit the particular conditions at each location.

The Cheetah data logger stores key operating data (e.g. fan speeds, temperatures, air flow, smoke sensor operation etc) and, via the GPRS remote access system, allows remote monitoring and the reporting of system activity and performance.

The remote feature also allows system configuration changes to optimise performance and identify and correct faults without the need to attend site.

In times of low activity in the kitchen the extract fan will typically be reduced to 40% of its normal operating speed which only consumes 6% of the energy

Cheetah can be timer controlled, minimising energy usage further by shutting fans off to predefined occupation schedules or holiday modes.

Air flow rates can be monitored and if they fall below pre-defined levels (e.g. due to the slipping of a broken fan belt) then an alarm is sounded and a warning shown on the display. This would provide vital advance information to allow preventative maintenance to be completed prior to any potential major fan failure.

Cheetah can interface with your existing building management system, ensuring that all the key data you need about your site can be accessed in one place.

# Summary of benefits

## Energy savings:

Cheetah saves energy by controlling the extract and air supply fans. Typically, fan speeds are reduced to 40% of their normal operating speed when activity levels in the kitchen are low. At this speed the energy consumption is only 6% of that with the fans running at 100% of their operating capacity. Significant further energy is saved by the resulting fall in demand for conditioned air supply.

## Providing a comfortable & safe kitchen environment:

Noise in the kitchen is greatly reduced from the use of Cheetah, along with better controlled working temperatures. Carbon dioxide sensors, if fitted, will also improve the working environment by ramping up the extract fans when excess carbon dioxide is detected, hence bringing the level back to a pre-determined range.

## Maintaining the extract system in good condition:

Air flow meters in the extract ducts enable the condition of the extract system to be monitored remotely, giving early warning of preventative maintenance needs.

## Remote monitoring:

Without visiting site, remote access means we can monitor key system KPI's such as fan speeds, temperature and air flows. Faults can be quickly identified and often fixed remotely, maintenance needs can be identified and performance optimised, all without attending site.

## Energy monitoring (optional):

Cheetah's energy monitoring unit can meter energy usage in up to eight locations in a restaurant/kitchen. The data is downloaded remotely and presented to the customer. This verifies the savings from Cheetah and identifies where further optimisation could enhance performance.

## Fire safety:

The temperature in the extract ducts is measured continuously and if high temperatures are detected, action is taken to alert the operators of a possible fire condition.

## Our process



### 1. Planning

An initial meeting is held with you to understand your needs and requirements. The Cheetah system will be specified to meet these objectives and provide optimum energy savings and payback.



### 2. Desk top review

10 to 15% of your estate will be surveyed and a summary analysis provided of the energy savings and payback that the installation of the Cheetah system would deliver across all of the estate.



### 3. Initial phase

Following the desk top review of the surveyed sites, these would be installed and the savings measured to ensure they demonstrate compliance with initial analysis and your expectations.



### 4. Remaining phase

In agreement with the customer a roll out schedule incorporating – surveying, analysis and installation is developed and the remaining sites installed.

# Services provided

## Design

Systems are designed in-house by Quintex to suit individual customer requirements

## Installation

Our dedicated team of electrical and mechanical engineers have installed over 3,000 energy savings systems in commercial kitchens or food preparation areas in hotels, restaurants, pubs, bakeries and supermarkets.

## Research & Development

We are continually investing in R&D to develop innovative and efficient energy saving solutions for the commercial kitchen environment.

## Monitoring, Maintenance and Reporting

We offer annual preventative maintenance, remote monitoring and energy performance reporting packages to ensure the continued efficient running of your Cheetah system for years to come.