

ECONO-TRONIC®

Energy savings and improved comfort
in industrial kitchens



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Econo-Tronic®

The **Econo-Tronic® System** was designed to save energy and increase ambient comfort in industrial kitchens by adjusting fan air flow to the real needs in the kitchen.

Advantages

Electricity savings up to 80%.

Less air conditioning and heating is lost through the hood.

Less noise in the kitchen and in the building.

Fewer draughts.

How the Econo-Tronic® system works

There are two basic reasons that justify using this system:

1. Extractor hoods usually work at 100% capacity all the time, despite the fact that there are many times during the day when extraction requirements are minimal.
2. The flow extracted by any centrifugal fan is proportional to the rotational speed, but energy consumption increases to the third power. Put simply, if the speed is doubled, twice the flow is achieved. But the cost is not doubled; it's 8 times greater.

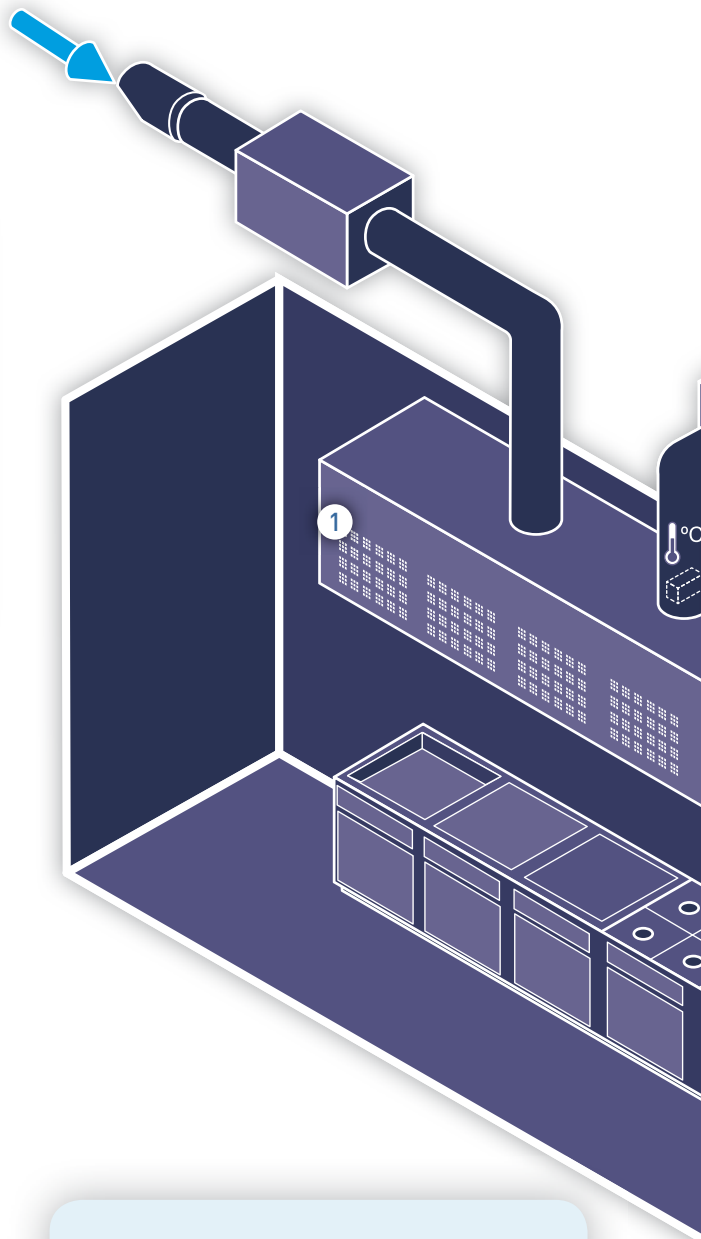
Fan formulas

$$\frac{Q_1}{Q_0} = \frac{\text{rpm}_1}{\text{rpm}_0} \quad \frac{N_1}{N_0} = \frac{\text{rpm}_1^3}{\text{rpm}_0^3}$$

Q → flow
rpm → rot. speed
N → power



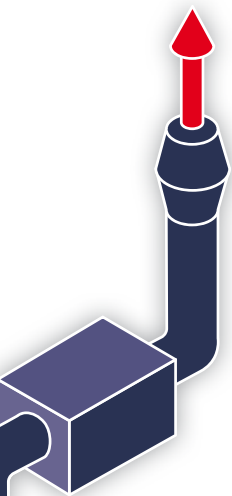
Throughout the day, variations occur in hood extraction needs. Adapting extraction to real needs can result in energy savings of 50% or more.



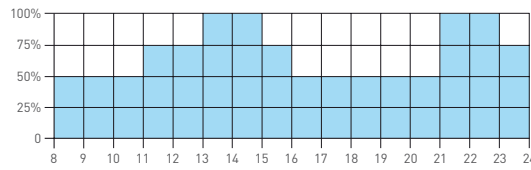
Examples

Fan Speed	Extraction Flow	Energy Consumed
100%	100%	100%
79,3%	79,3%	50%
75%	75%	42%
50%	50%	12.5%

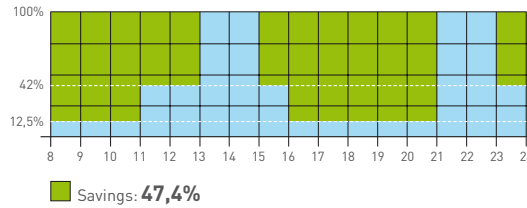
Attention A slight reduction in speed of only 20% results in a 50% reduction in energy consumption. If the speed is reduced by 50%, consumption only amounts to 12.5%.



Ventilation needs in a standard kitchen throughout the day



Energy consumption with Econo-Tronic® as a % of the maximum



Operation

In **automatic mode**, the **Econo-Tronic®** controls extraction flow based on the real working conditions in the kitchen at each moment in time. The system can also monitor the incoming air flow in the case of compensation and induction hoods.

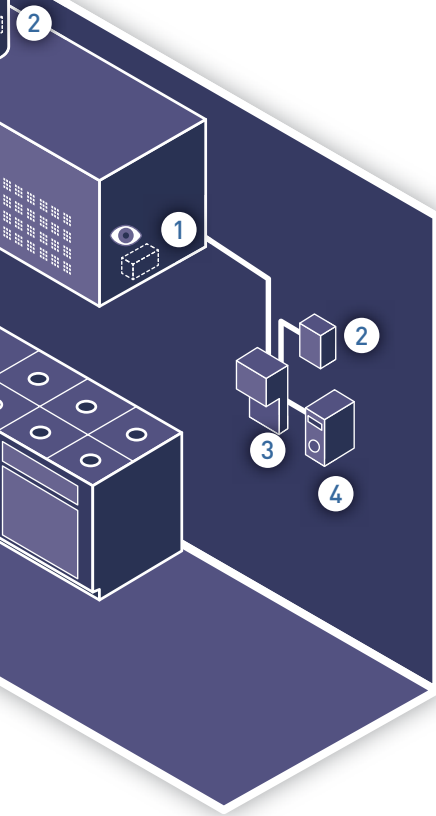
To determine the working conditions, the **Econo-Tronic®** uses temperature sensors to measure the temperature inside and outside the extractor hood, and optical sensors to determine the amount of fumes produced.

Temperature and air-opacity data are electronically processed and the programme determines the ideal speed for the fans at that time. This process is performed continuously to ensure that the selected fan extraction and air-supply speeds are always at just the right level.

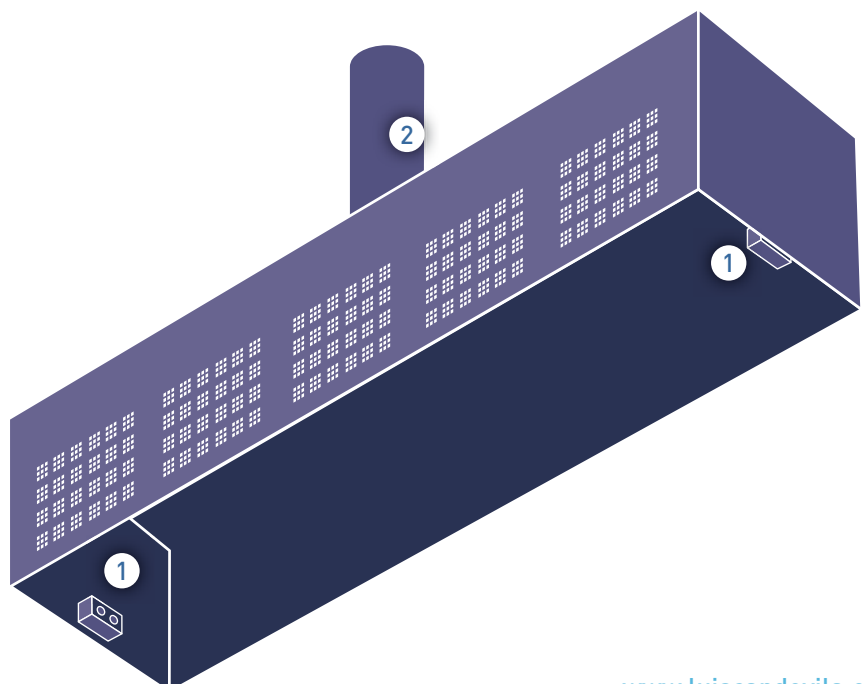
Finally, the selected speed is transmitted to a variable-frequency drive, which is what actually controls the fan.

Users can chose **manual mode** at any time and adjust the speed as required as in the case of a variable-frequency drive.

If the programme receives a fire signal or if the temperature inside the hood is very high, the speed is increased up to 100% to ensure the kitchen is well ventilated.



- 1 Optical sensor
- 2 Temperature sensor
- 3 Electronic control
- 4 Variable-frequency drive





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