

Farms: a problem in the air

Contamination from farming due to the feed, excrement and other waste, affect directly to animals health. This make significantly decrease the productivity of livestock farms.

Among the principal pollutants that may affect production and livestock health, Spanish Ministry of Agriculture, Fisheries and Food highlights the following:

- **Carbon dioxide:** it is recommended not to exceed concentrations between **3.500 y 4.000 ppm**.
- **Ammonia:** it is recommended not to exceed **20-45 ppm**. Higher concentrations can cause respiratory and eye diseases and loss of appetite. It is also a harmful gas for the personnel working on the farm.
- **Hydrogen sulphide:** it is recommended **not exceed 10 ppm**. Exceeding this figure may cause serious digestive disorders in animals.
- **Carbon monoxide:** concentration **should not exceed 25 ppm**.
- **Dust:** its presence causes respiratory diseases. The following concentrations are recommended: **total dust (2,5 mg/m3) and breathable dust (2,0 mg/m3)**.

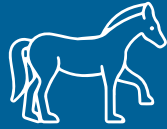
Solution: *Cyclohnic*

Cyclohnic is an air purifier specially designed for indoors environments with high levels of pollutant particles; as stables, pigsties, barns or other livestock establishments.

This device combines a double patented OH⁻ purification technology and the effect of photocatalysis with different filtering stages, capable of retaining solid, liquid and gaseous contaminants thanks to the different types of filters available.

Application

Cyclohnic it is valid for any kind of livestock establishment, whether for breeding, housing or feeding animals. It is perfect for all types of cattle.



Horses



Pigs



Cows



Sheeps



Poultry



Goats



Exotic animals

Functions



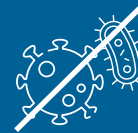
Reduces pollutant gases



Eliminates odors



Improves air quality by inhibiting VOCs and particles



Inactivates viruses and bacteria



www.airtecnics.com



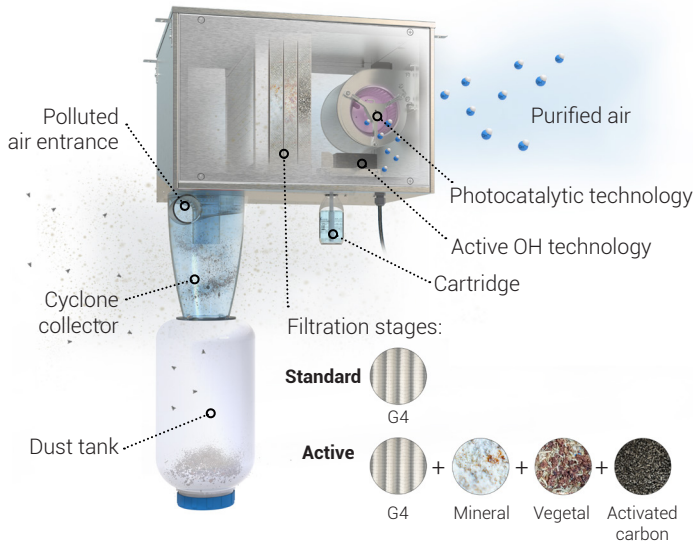
cyclohnic

First air purifier for
livestock farming









How does it work?

- 1 The cyclone collector captures the large particles and precipitates them into the container.
- 2 The air passing through the cyclone is filtered, removing smaller particles, humidity and pollutant gases (with specific filters).
- 3 The action of photocatalytic technology purifies the air.
- 4 Hydroxyls are generated and expanded by chain reaction (active OH technology) to purify the air and the surfaces of the installation.



Technical features

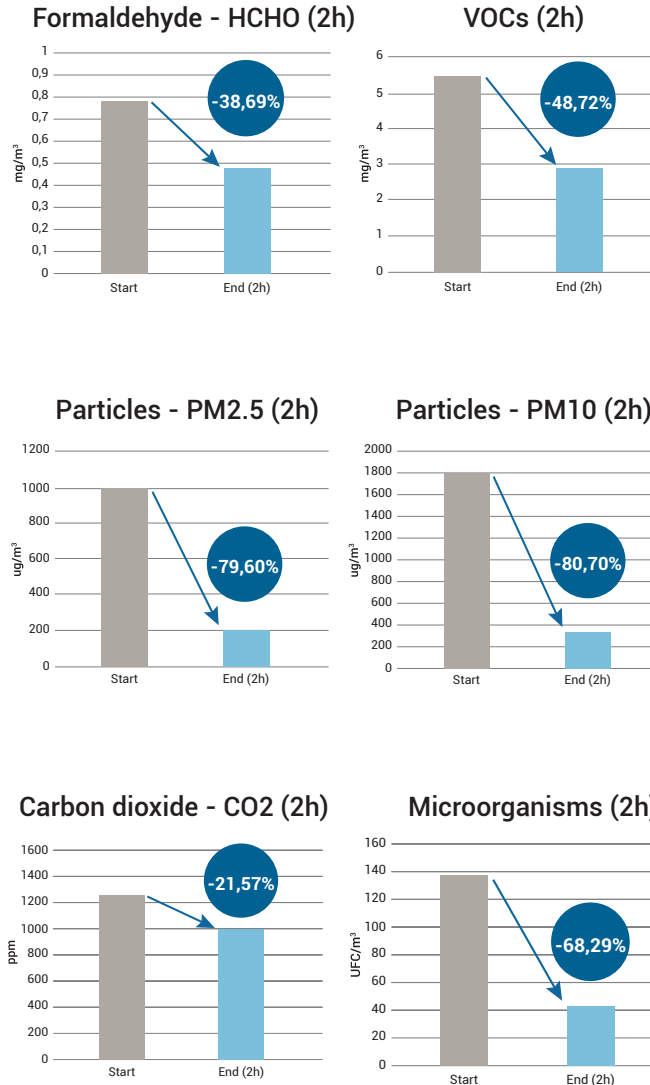
Total dimensions of 533 x 413 x 949 (mm).

 Air flow (m ³ /h) 110	 Consumption (Wh en 1h) 82	 Current (A a 230V-50Hz) 0,36	24/7
 Range (m ²) 350	 Weight (Kg) 14,5	 Noise level (dB a 3m) 55	

Effectiveness of Cyclohnic

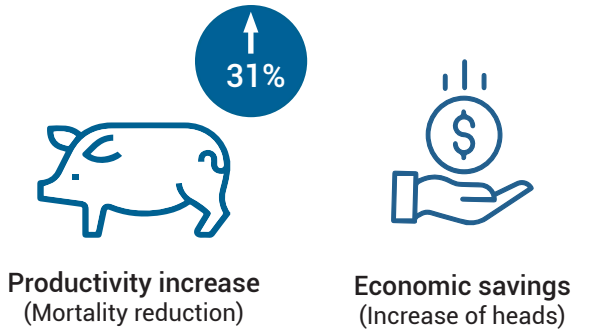
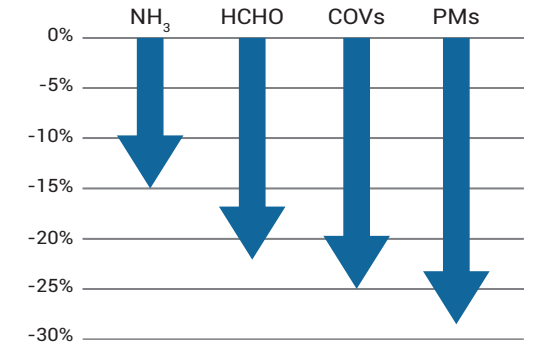
The efficiency of the standard Cyclohnic device in improving air quality and its ability to reduce airborne microorganisms has been tested and validated in our laboratory in collaboration with CRESCA-UPC.

Results (in 2 hours of operation):



Case study: pig farm

During a period of 73 days, the reduction of pollutants (NH₃, HCHO, VOCs, PMs) was assessed in a farrowing room of about 230 m² in a sow farm (6 rows of 7 sows), where two standard Cyclohnic equipment were installed. **The productive increase (due to the reduction in mortality) in the purified room compared to the other rooms in the study has also been studied.**



The effect of this improvement in air quality on the production of the farm has been evaluated, obtaining as a result an **average reduction in mortality of 30.8%, which is equivalent to 129 heads in 3 months.**

If we extrapolate the results obtained, an increase of around 516 heads per year could be achieved. If the cost associated with the sow stage is €24.22/pig, the incorporation of air purification equipment could lead to savings of up to €12,497.52/year.