

# Fan testing and certification

We test smoke and heat control systems to EN 12101-3.



## What is fan testing?

Our facilities in Barcelona and Asturias are completely versatile and have a large capacity to do ventilation systems testing and ventilation certification. This allows us to adapt to the characteristics of each manufacturer's fans.

We have at our disposal:

- Fans of all types and positions
- Fans of up to 3.5 metres in diameter and 1MW of power.

In addition, thanks to [full-scale tests](#) in tunnels, we can carry out fire simulations and test the performance of smoke and heat control fans for closed installations such as tunnels, garages or large transport infrastructures.

## EN 12101-3: Smoke and heat control systems

The EN 1201-3 standard to which we are accredited sets out the **testing, classification and certification requirements for smoke and heat control systems**.

Compliance with this standard is mandatory for CE marking, but it has also become a global benchmark for demonstrating the quality of fans in markets where fire resistance testing is not mandatory.

We also have a voluntary certification mark for high temperature fans based on EN 12101-3 and the European certification process. The [Applus+ Fire Safety Certification](#)

quality mark is another differentiating factor in those markets where regulations do not require a [fire resistance testing](#) and certification process, and allows manufacturers and distributors to demonstrate product quality to specifiers and end customers.

We perform high temperature tests under this standard for both jet fans and axial fans for tunnels. We are able to test fans with the following characteristics:

- Power ratings: up to 1,000 KW
- Maximum diameter: 3,500 mm in the circuit and 2,000 mm in the furnace.
- Power supply voltages: 400 ÷ 6,900 V
- Frequency: 50-60 Hz

## Fan test benches

Two types of test benches are available for ventilation testing: furnace type and circuit type.

### Furnace type test bench

The furnace is used to test fans in which the entire body, including the motor, is subjected to high temperatures in the event of fire, as in the case of jet fans.

It is a closed enclosure measuring 10.66 m x 4.16 m in plan and 3 m in height, suitably lined on the inside, and equipped with an internal circulation circuit and a 1,400 KW gas burner.

### Circuit type test bench

This is used to test fans in which, in the event of fire, the air passing through the blades is heated, but not the air in the room in which the fan is located, as is the case with fans used in transverse, semi-transverse or Saccardo ventilation systems.

The bench is a closed hot air recirculation circuit, the main characteristics of which are as follows:

- Total length: 48.4 m
- Circuit diameter: 2,400 mm
- Diameter of the measuring chamber: 3,800 mm
- Burner power: 4,050 KW

## Applus+ TST's control system

We have our own control system located in a control cabin within the building itself. This system located in [Applus+ TST](#)'s facilities, which is independent from the tunnel control system, allows the supervision and control of all the laboratory's equipment during the execution of the tests, as well as the recording of the measured parameters.

## CE marking

Manufacturers or distributors of mechanical smoke and heat extraction systems that are used permanently in infrastructures or buildings must demonstrate compliance with EN 12101-3 in order to be able to [CE mark](#) and market their product in the European Union.

The most recent version of the standard, EN 12101-3:2015, passed its transition period in April 2017. As of this date, all fans placed on the market must have been tested under the new version of the standard.

## Why choose Applus+ Laboratories for Fan Testing and Certification?

Most manufacturers have wide product ranges with variations in fan sizes, positions and typologies. Our experts study each project to identify the most optimal route to product certification. This study allows us to identify which models should be chosen as test samples in order to maximise the number of certified models with the lowest possible number of tests.

- Project study and sample selection
- Tests in an accredited laboratory
- Product classification
- Inspection of the production control system in the factory
- Certification and [market access](#)