

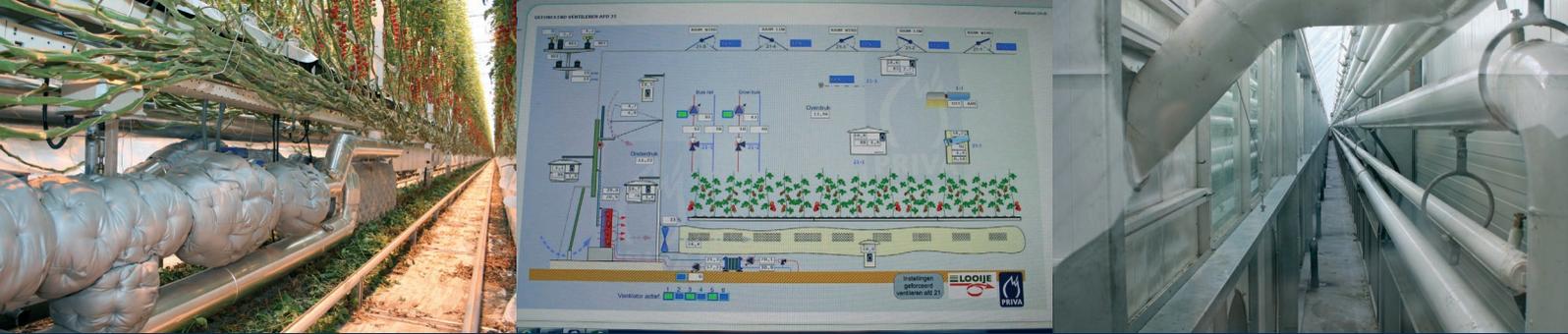


## ActivAir: The next level of Next Generation Growing

The design of Looije's new greenhouse for tomatoes in the Dutch village of Burgerveen is a step forward for Next Generation Growing. A solution has been found for the condensation that occurs when incoming external air meets greenhouse air. Condensation and growth of algae are prevented by heating the air before it mixes with the recirculation air from the greenhouse. Also, the innovative control of airflow is impressive. The greenhouse is packed full of smart solutions, which have been developed in close cooperation with the suppliers.

See how ActivAir works on [www.activair.nl](http://www.activair.nl)





**The first innovation is the solution for the condensation that occurs when incoming external dry air meets warm greenhouse air. The heating elements in the wall can warm up the external air immediately as it enters the greenhouse.**

The heating blocks are mounted in the outside wall. Heating takes place via a heat exchanger attached on the heating system in the greenhouse. Every single heating block can be adjusted per section within the ActivAir system.

In the mixing chambers dry outside air enters and mixes with greenhouse air. Both are independently adjustable. At the top is a recirculation valve, through which greenhouse air enters. CO<sub>2</sub> is immediately added within the mixing chamber.

At the end wall of the greenhouse a corridor with an acoustic roof cover has been integrated. It limits the noise out of the greenhouse, the light emissions and the covering reduces differences in air pressure.

When outside conditions require large amounts of air, during summer for instance, a bypass is made around the heating block. This reduces the resistance and therefore the electricity consumption. Combined with the high efficiency of the fans, the desired ventilation flow rates are achieved with half the capacity of previous Next Generation Greenhouse projects.

To limit the presence of insects the number of ventilation windows are limited to only 750 on 9 hectares. All equipped with insect nettings. In the greenhouse there is a positive pressure of 10 Pascal. This pushes the warm air through the screen during the night so the blackout screen can remain closed and light emission remains at a minimum.

The innovative control of heating, dehumidification and airflow is impressive with ActivAir. The fans can be controlled separately. Everything is visible on the control display: airflow, climate data, position of ventilation windows and recirculation valves. Also air pressure, fan capacity and the temperature of the heating system. A precise pressure measurement ensures that the positive pressure is always at the required level.

To prevent unwanted air currents the greenhouse is built with a relatively small degree of slope. The water drainage has to be very precise. No dirt and light can fall into the gutter, because the high drain channel fits closely to the gutter.

By controlling the air inlet and the heating ActivAir leads to a better climate control and energy savings of 10%. There is also a reduction of CO<sub>2</sub> loss. As a result, annual production could increase by 5%. ActivAir creates optimal control of energy and humidity.

Interested in the possibilities for your company? Please contact one of the partners:

