

# Greenhouse - horizontal ventilation

Air circulation system with AxiCool



## Nominal data

Type	W3G450-SL03-H3
ebm-papst Product	AxiCool with air guiding system
	additional safety guard on suction side in white
Air volume	m <sup>3</sup> /h 4230 CFM full speed, commonly used at 2073 CFM
Fan input power	W 414 (full speed), used at 2073 CFM, 49 W
Amount of fans	500

## Project Application Advantages/Benefits ebm-papst product

### Project



The emerging Greenhouse technology solution provider KAVA engaged with Randhawa Farms to exploit and fulfil the demand of air circulation within various greenhouse structures. To realize this +2,000,000 sqft Greenhouse with the capacity to grow over 500,000 bell pepper plants was built in Abbotsford, B.C Canada and is partially equipped with ebm-papst EC fans. Another +2,500,000 sqft Greenhouse to showcase the technology they developed together with ebm-papst is underway. Randhawa Farms requires homogeneity and optimization of airflow throughout the greenhouse. Their experience illustrates that preservation of the greenhouse environment requires maintaining thermal consistency throughout the greenhouse. As such, the objective is to maintain a uniform meandering airflow climatic condition, with a steady air velocity distribution through the greenhouse, while avoiding conditions such as air sinking, static pockets and turbulent air transfers.

### Application



Greenhouses aspire to produce a constant integrated air movement through the application and precise control of targeted airflow streams running north to south, then back south to north, and then repeated snaking from one end to the other within the greenhouse. It is logical to assume that this could be accomplished via air transfer functions from one air circulation fan to the next and so forth that combined form controlled air streams throughout the greenhouse from one compartment to the next. To that end greenhouse owners looked to KAVA and fan expert ebm-papst to review the fans that they currently had in use, noted the issues they had with those fans, and developed a fan system solution specific to greenhouse needs.

### Advantages/Benefits ebm-papst product



epUS designed a mounting bracket to hang up the fan in the Greenhouse. The mounting bracket is also white to achieve highest reflection of sun in the Greenhouse. Further it is adjustable in height with the plants growing tall.

- ebm-papst solution offers adjustability in height (no tooling/screws needed)
- Can pivot the fan left to right for the higher end solution (base model does not pivot)
- Consumes approx 26% of the original power of the Z-A and MultiFan
- Housing in UV rated materials was a requirement as black plastic was not acceptable
- Integrated speed control via a potentiometer
- Farther air throw (max. 40 m or 131 ft. with size 450) and more precise control of air flow.

In the maximum thrust range, a remaining air velocity of 0.5 m/s can still be measured. Thrust ranges depend on the installation situation.

- Unit air distribution

Air distribution without Air Guiding system



Air distribution with Air Guiding system

