

COPELAND COLD CHAIN SOLUTIONS

Copeland enables Smart Grow Farms with reliable climate control for vertical farming

Precision cooling and humidity control for sustainable agriculture.

Smart Grow Farms, a vertical farming company located in UAE, specializes in soil-less, sustainable agriculture through vertical and greenhouse farming. In their mission to deliver hyper-fresh produce, they required a precise and efficient climate control system that could maintain optimal temperature and humidity levels, while also supporting eco-friendly operations and minimizing downtime.

Challenge

Smart Grow Farms faced several critical needs in their vertical farming operations:

- Energy efficient refrigeration system with eco-friendly refrigerant to support sustainability goals.
- Advanced Compressor Electronics for quick troubleshooting and reduced downtime.
- Real-time and accurate monitoring of temperature and humidity.
- A system maintains a temperature range of 12°C to 24°C with precise humidity control, incorporating dual setpoints to accurately simulate distinct daytime and nighttime conditions.
- A solution that ensures easy installation and scalable support for three warehouses.



Solution

Copeland delivered a complete and integrated refrigeration and monitoring system that included:

- Twenty W9-4ML-15X semi-hermetic CDU units with R-134a refrigerant and Compressor Electronics for real-time compressor diagnostics and performance tracking.
- XR75CH Prime controllers, XJM60D I/O modules, and XWEB500D monitoring platform to manage and visualize real-time data for temperature and humidity.
- XJR40D relay modules for sequencing operations across 3 separate warehouse facilities.
- XWEB sequencing enabled Smart Grow Farms to automate temperature and humidity controls for both daytime and nighttime cycles.

This setup ensured reliable compressor performance, optimized efficiency through discus valve technology, and seamless environmental monitoring.



The collaboration between Copeland and Smart Grow Farms highlights the role of smart, connected climate solutions in transforming sustainable agriculture. With Copeland's leading technology and excellent aftermarket service Smart Grow Farms now operates with greater efficiency, control, and confidence in their mission to grow fresh, high-quality produce sustainably.

Results



Energy savings

The system achieved reduction in annual energy costs through efficient compressor operation.



Precision control

Seamless day/night climate simulation helped ensure ideal crop growth conditions (12°C to 24°C with accurate humidity).



Operational uptime

Compressor Electronics and XWEB500D enabled fast, remote diagnostics, minimizing downtime.



Scalable support

Modular installation across 3 warehouses ensured flexibility and future expansion.

To learn more, visit [copeland.com](https://www.copeland.com)

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Engineered for Sustainability