



GRW
Precision Indoor Horticultural Unit

The SolutionAir GRW is a proven solution for precise humidity and temperature control, specifically engineered for the indoor horticultural market.

There are three major factors to maximizing crop growth and harvest yield: the indoor environment, lighting and fertigation. This unit provides the superior climate control necessary to command your indoor environment. It will help you produce the largest crops at the lowest operating and life cycle costs, while assisting in preventing the introduction of environmentally induced crop health issues.

JWC's experience working with SolutionAir has been incredibly valuable. We've seen a very significant improvement in terms of finite control over the space and the responsiveness of the system, which allows us to maintain our environment. The less we've needed to worry about controlling the environment, the more opportunity we've had to fine-tune our own processes, to tremendous success.

William Werth, Chief Technology Officer, JWC

What makes the GRW the best in the market is that it's the only purpose built unit for indoor cultivation. Everything else is a modification of some other type of unit. The GRW isn't trying to make a dehumidifier do two things, or designed for something else that's essentially a square peg in a round hole. The SolutionAir team is there with you for the life of your project and really want to support what you're doing. They have years of experience and a lot of great engineers on staff, so you know that the GRW is an engineered product; it's not something that's just trying to fit into the marketplace.

Brian Zimmerman, Consulting Engineer, Grow2Guys

Our plan was always to build an indoor facility from the ground up as opposed to a retrofit, and to spend the money once but spend it the right way. We picked SolutionAir because they have some of the most capable, smartest people I've come across in my career. The GRW is the lifeblood of our operation – it can't go down. When we do need support, the service we get is pretty stellar – it really seems like they care, and really dig in to solve the problems, which is all you can ask for. They're learning with us, and that's the partnership we entered into with the understanding that the more feedback we give, the better the GRW units will get as we continue to expand. **We feel confident that they're the best possible units we could have put onto our roof.**

*Scott Halloran, Chief Operating Officer
& Co-Founder, Buckeye Relief*



SolutionAir has a proven track record of providing purpose built units for other specialized applications including laboratories, archives and pharmaceutical manufacturing for over two decades.

Lowered Risk of Contamination

The GRW is designed to minimize the introduction of biological contaminants such as molds, bacteria and fungus in order to optimize crop health.

Year Round Control

The unit is designed to provide full mechanical cooling and dehumidification in ambient conditions as low as -40°F (-40°C) and as high as 110°F (43°C).

Energy Savings

High capacity dehumidification and premium efficiency components mean that the GRW can efficiently remove more moisture with less energy than competitive technologies.

Reduced Life Cycle Costs

Variable capacity and part load control ensures the unit will use less energy and require less service, resulting in reduced annual operating costs.

Variable Capacity Constant Load Operation

The GRW matches the required load via modulating capacity for dehumidification and cooling using variable capacity compressors, independently controlled split face coils and variable airflow.

Proprietary Controls Strategy

The control system employs specialized logic to meet the exacting needs of the indoor horticultural environment.



Precision Control System

The GRW control system allows the temperature and absolute humidity to be controlled independently to meet the continually fluctuating demands of the environment.

- Units are designed for the full dehumidification operational load profile of the indoor environment, which reduces over-dehumidification, in addition to controlling high humidity.



Energy Savings

- **High Dehumidification Capacity:** The GRW can efficiently remove more moisture out of every cubic foot of air than current technology, reducing airflow and the associated operating costs as well as reducing the energy required for dehumidification.
- **Variable Capacity:** The ability to operate at variable capacity not only ensures precision control, but also results in energy savings by reducing over-capacity operation.
- **Highly Efficient Redundant Direct Drive Blowers:** High efficiency blowers reduce the energy required to operate, while also decreasing the amount of energy added to the occupied space. In the event of a failure, the redundant blower will keep systems operational.
- **Separate Evaporator Coils and/or Coil Bypass Combined with Airflow Controls:** This combination reduces overall blower energy demands.
- **Premium Efficiency VFD Controlled Condenser Motors:** These motors provide high operating efficiencies and variable speed.

At SolutionAir, the foundation of product development is science validated through rigorous testing.

*Brad Tully, Vice President
and General Manager*



MASTERY OVER THE
INDOOR ENVIRONMENT
IS CRITICAL FOR
MAXIMIZING GROWTH
POTENTIAL AND
HARVEST YIELD.



Fail Safe Operation

The SolutionAir GRW is designed with a combination of features and options to ensure continuous, effective operation:

Detect + Protect™ Advanced Monitoring System

- The refrigeration charge monitoring feature monitors the status of the refrigeration charge, designed to detect and report on an issue before it can affect equipment performance.
- A compressor monitoring system detects anomalies in the refrigeration compressors, providing crucial performance feedback.
- The direct drive blower and condenser motors are monitored for power consumption, which can flag potential issues before they become a concern for future operation.
- A virtual network interface allows technicians to view live unit performance and download past logged data to diagnose issues without attaching any service gauges or sensors.

Multiple Independent Circuits

- Redundant safeguard features are incorporated into the unit design for unsurpassed reliable fail safe performance.
- Multiple compressors in several independent refrigeration circuits.
- Multiple evaporators, each with independent electronic expansion valves.
- Multiple condensers with separate condenser fans.

Modified Fail Safe Operation

- In the unlikely event of a component failure, the GRW will automatically change operating parameters to best use the remaining functional components to meet the operating conditions.
- Redundant blowers are installed to provide continuous air circulation in the event of a blower failure.

Low Maintenance Construction

The GRW is designed with structural integrity in mind. SolutionAir uses quality component materials, corrosion resistant fasteners, and key welding locations to create a unit that will maintain its structural integrity for years to come.

Marine Grade Aluminum Construction

The GRW cabinet is constructed with corrosion resistant aluminum, which will reflect over 70% of UV and infrared radiation. The unpainted material meets today's rigorous requirements for IAQ with no VOC gases being released from a coating system.

The lighter weight aluminum reduces support requirements, especially important for retrofit applications that may not have the ability to change building support structures.

Unit Insulation

The GRW cabinet is insulated with flame-proof, water-proof stone-wool insulation, meeting NFPA 90A (0/0) flame smoke rating standards.

The insulation contains recycled content, which can be applied for LEED credits.

Thermoshield Cabinet Design

The GRW's Thermoshield cabinet is designed with our patented double-thermally broken flanges and assembled with methods that reduce thermal conductivity in order to isolate the indoor environment from outdoor conditions.



Clean Supply Air

The SolutionAir GRW is designed to minimize the introduction of bacteria, fungus, and molds and the spread of contaminants by eliminating conditions within the unit that could promote them.

Hygienic Cabinet Design

The GRW's cabinet is designed to reduce condensation in non-drain pan protected areas. The patented double thermal breaks and advanced wall construction reduce cold spots within the unit that could promote condensation. Condensate that settles within the unit can provide an ideal environment for mold and contaminants to grow.

Available UVGI Lights

The GRW can be designed with ultraviolet germicidal irradiation lights (UVGI) to disinfect incoming air of harmful micro-organisms, keeping the indoor environment cleaner and crops healthier. After a certain amount of exposure, bacteria and molds are neutralized.

Available Variable Positive Pressurization

The GRW can be designed with a Fan Filter Unit (FFU) to provide variable positive pressurization to the unit cabinet and growing chamber. Positive pressurization forces air out of the pressurized zone through any small gaps or cracks. This creates an air barrier that blocks contaminated outside air from leaking into the room and introducing harmful bacteria, fungus and molds. The FFU is fitted with an ULPA filter that traps particulate up to 0.12 microns in size - small enough to filter harmful black mold spores.

Optional CO₂ Augmentation System

The CO₂ augmentation system delivers calculated amounts of CO₂ to the supply air stream. The added CO₂ promotes crop growth and health by optimizing the air composition within the room.

Available Emergency CO₂ Purge

The GRW unit can be designed to be tied into CO₂ augmentation systems. When CO₂ levels are measured to be dangerously high or low, the GRW unit will aid in purging the room of compromised air and bring in fresh, filtered air. This minimizes harm to crops by bringing the room back to safe CO₂ levels.

