

Control the Growing Environment

Get precise humidity and cooling control for consistent and healthy medical marijuana crops — with a Delta T Solutions chilled water cooling system.

High-yield, high-quality medical marijuana plants thrive in a tightly controlled greenhouse or indoor growing environment. These systems require precise control, efficiency and reliability. Chilled water cooling from Delta T Solutions provides the ideal growing environment.

▶▶ **How Hydronic Cooling Controls Humidity**

Hydronics uses water as the heat-transfer medium in heating and cooling. Air cooled chillers or chillers with cooling towers provide cold water, while boilers provide hot water.

It is critical to control humidity for medical marijuana growing. Optimum relative humidity levels should range from 30% to 50% for flowering and 50% to 60% for vegetative growing. Chilled water cooling offers the precise humidity control needed for consistent crop health.

In this system, cold water is pumped from the chiller through specially designed fan coils designed for maximum sensible/minimum latent cooling.

The way the crop is grown determines where the fan coils are located, not necessarily the crop growth tendencies. The fan coils are placed in accordance with the greenhouse layout and growing situation. Simply put, warm air rises and cold air drops. For flexibility, this system may be broken up into individual temperature zones using either multiple circulator pumps, or a single pump and electrically operated zone valves.

Like radiant heating, chilled water cooling is controlled and regulated by the environmental controls, giving the grower precise control of the temperature of the plants, the humidity of the growing area and other climate factors. Direct digital controls have the added benefit of energy and cost savings.

▶▶ **Precise Humidity Control**

Many commercial greenhouses use evaporative cooling, which can cool air to about 10 to 20 degrees below the outside temperature. But these systems use mists, sprays or wetted pads to lower air temperature, which can create too much humidity. In contrast, standard air conditioning systems dehumidify to the point of 10% to 20% relative humidity when cooling for long periods of time — too low for proper growth and production.

The Delta T Solutions system controls relative humidity better, providing both cooling and humidity control without dehumidifying to the extreme. It also cools the air to a temperature at or around dew point, to avoid condensation of the air and excessive humidity. This provides the ideal growing environment for healthy crops.



Chilled Water System Components

The Delta T Solutions chilled water cooling system provides all the elements needed to control the medical marijuana growing environment:

- Water- or air-cooled chillers
- Multiple unit types of fan coils customize the system to meet each grower's needs and specifications:
 - Under bench or hanging fan coils — optimized for maximum sensible/minimum latent cooling
 - Overhead fan coils provide control for floor-grown tall crops
 - Under bench fan coils offer soil-level control for bench crops or plug-growing
- Environmental control system for precise cooling and humidity control
- Multi-chiller loop piping components

Custom Design Solutions

Chilled water cooling systems offer precise control and are typically developed as a custom solution for each growing operation. Consider these factors when selecting a system:

- Installed cost & energy consumption
- Space requirements
- Freeze prevention
- Precision
- Growing area height, size and shape
- System cooling and heating capacity
- Centralized maintenance
- Stability of control



Chiller Pump Station



Chilled Water Fan Coil Units

Learn how your operation can benefit from the Delta T Solutions chilled water cooling system by contacting us at 800-552-5058 or email sales@deltatsolutions.com.

