

Online Extras

Grow All Summer: Water-Cooling Explained

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10 Tips for Water-Cooling

- 1.** Always keep your chiller in a well ventilated area outside the grow room. All the heat removed from your garden is released in the form of hot air blown out the back of the chiller. The basic idea of water cooling is to use water to efficiently collect the heat and move it out of the grow room so it can be re-released elsewhere. If the chiller is constantly taking in hot air, it will not operate efficiently, which reduces its cooling power.
- 2.** If your chiller is properly sized, there is no need for a large reservoir. With a properly sized chiller, a 20 light system can be cooled with a 30 gallon reservoir.
- 3.** Always buy a larger chiller than you need. If the chiller is sized exactly to what you need, it will run constantly while the lights are on, which reduces its life. Buy the largest chiller you can afford - ultimately it will use the same amount of power as a smaller chiller because it will run less often.
- 4.** An entire water-cooled system for any size garden, including air conditioning and dehumidification, can be operated with one chiller, one reservoir and one pump if properly designed.
- 5.** If using a chiller, locate your reservoir inside the garden, or if placing it outside the garden, make sure it's insulated. If the water is colder than the ambient temperature, the reservoir will absorb heat from its surroundings. If using passive cooling with no chiller, locate the reservoir outside the garden and do not use insulation so that the water can cool naturally.
- 6.** Insulate all of your water lines with foam pipe insulation from your local hardware store to prevent them absorbing heat and most importantly to stop condensation.
- 7.** There are aquarium-style chillers sold in our industry for the purposes of cooling nutrient reservoirs. Although very effective at cooling nute reservoirs,

these chillers are not designed to be under the constant load of water-cooled equipment and will not last long running this way. Although the heavy duty chillers are more expensive, they are worth it in the long run.

- 8.** More is not necessarily better when it comes to a pump's GPH rating for a water-cooled system; what is important is head pressure. Head pressure relates to the amount of power a pump has, which is what pushes the water through the system. If there is not enough power you will not get even distribution through your manifolds (for multiple light systems) and the system will not cool properly. Just because a pump has a high GPH does not mean it has high head pressure.
- 9.** In colder climates, hot water created by cooling the equipment can be stored in a reservoir while the lights are on. This hot water can then be used to heat the grow room while the lights are off.
- 10.** Reservoirs can be placed outside in cooler climates where the heat from the garden can be released. Use food safe propylene glycol to keep the water from freezing if applicable.

