

Evaporative Cooling Cuts Energy Costs



Keep data centers running with less mechanical cooling

Keeping servers cool is a mandatory requirement for data centers to meet the mission-critical need for uninterrupted uptime. As the heat densities of racks increase, energy costs rise, and budgets tighten, you need new strategies to control energy costs without compromising the mission.

Evaporative cooling reduces mechanical cooling requirements

When moisture is added to an airstream, the temperature of the air decreases. The concept of evaporative cooling has been used for many years in many areas of the country to reduce the load on mechanical cooling equipment. Because the air is “precooled” by adding moisture, the HVAC compressors do not have to work nearly as hard to meet the cooling load requirements.

In dry climates, such as the western United States, evaporative cooling can handle most of the cooling load, using only 25% of the energy of conventional mechanical cooling. The lower the relative humidity, the greater the temperature drop that can be achieved by evaporative cooling. The air temperature can be reduced 18 to 25°!

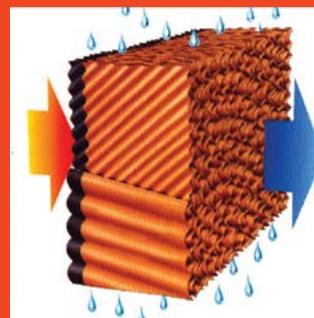
What’s more, data centers, with their low latent heat load, are ideal targets for evaporative cooling. Evaporative cooling will also add humidity to the data center to

ensure it stays within optimum range.

Evaporative cooling is a cost-effective solution that can significantly extend the economizer “free cooling” operating range and can be seamlessly integrated with Trane systems. Beyond the cost-saving reduction in mechanical cooling, evaporative cooling can improve your data center’s load profile to enhance your negotiating position in a retail electricity market.

Is evaporative cooling right for your data center?

The effectiveness of evaporative cooling can provide operating cost advantages in many areas of the country. Talk to the cooling experts at Trane to find out how well evaporative cooling will work for you.



When warm, dry outside air is drawn through a water-saturated medium, the evaporation of the water cools the air by as much as 25°. As a result, the load on mechanical cooling equipment is significantly reduced to lower energy costs.

Use Trane controls for even greater reliability and performance

Our advanced controls use smart adaptive strategies that adjust operating parameters to keep the system running as long as possible. Talk to your Trane Sales Engineer about our complete packages of data center control solutions, including full integration with non-HVAC components.

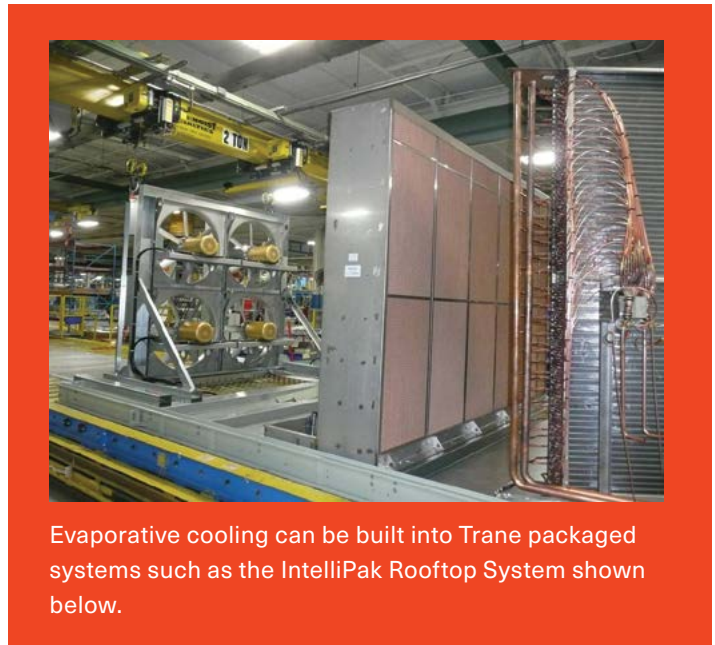
Rapid Restart™ enhances data center reliability

Operating efficiently as possible is certainly an important consideration in a data center, but being on-line is paramount. Trane systems deliver Rapid Restart capabilities, which offer industry-leading start-up times in the event of a power outage. Once power is restored, your Trane system is fully back in operation in two minutes or less. Complete rooftop equipment can take up to 15 minutes, long enough for servers to overheat and shut down. With Trane Rapid Restart, the mechanical cooling starts up before the servers heat up.

How Trane delivers Rapid Restart

Trane understands that every second counts. Trane equipment, controls, and control sequences are designed to get your system back online and properly functioning should your facility experience a power cycle event.

- Trane HVAC system design is optimized for fast restart, and will provide mechanical cooling in 120 seconds or less.
- RTU controls and equipment provide an integrated, pre-engineered solution for fast restart.
- Proven operational procedures maximize uptime during critical outages and get the system up and running as quickly as possible.



Evaporative cooling can be built into Trane packaged systems such as the IntelliPak Rooftop System shown below.



Trane – by Trane Technologies (NYSE: TT), a global climate innovator – creates comfortable, energy efficient indoor environments through a broad portfolio of heating, ventilating and air conditioning systems and controls, services, parts and supply. For more information, please visit trane.com or tranetechnologies.com.

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