

Thermal Battery™ Air-cooled Chiller Plant



Thermal Battery Cooling System converts the chiller plant to a distributed energy resource for a changing grid

Premier offering simplifies the design, installation and commissioning process

While climate change and the increased use of intermittent renewable resources are transforming the grid, you need a dependable solution that overcomes these intermittency challenges. The Trane Thermal Battery Air-Cooled Chiller Plant does just that by behaving like an air-conditioning battery. The plant provides flexible electricity load management that enables the system to respond to changing generation resources and electricity rates - making building operations and price more grid interactive. The Trane controlled chiller charges Ice Bank® energy storage tanks when excess or inexpensive energy is available, or when chillers and the power system are more efficient and discharges stored cooling when demand and price are high or when the utility asks for the discharge to occur.

Simplified thermal energy storage

The Trane® Thermal Battery air-cooled chiller plant is a thermal energy storage system, which can make installation simpler and more repeatable, helping to save on design time and construction cost. Trane offers pretested, standard system configurations for air-cooled chillers, ice tanks, and pre-packed pump skids integrated with customizable, preprogrammed system controls.

Thermal Battery System advantage

Thermal Battery Systems can raise sustainability. Additionally, depending on the project-specific details, potential financial advantages make ice storage very attractive.

ADVANTAGE

Lower operating costs. Reduce your electrical costs by helping your local electric utility manage peak demand. By reducing peak energy consumption with stored cooling, the system can lower demand charges, provide opportunity to negotiate better rates or even qualify for grid programs that may provide additional revenue. Trane will partner with you to design a load-shed strategy, that fits your business needs and available utility programs, while maintaining occupant comfort and operational requirements.

Affordable installation costs. The overall installed system cost on new installations can have an attractive payback compared to traditional temperature air-cooled chiller plants and could be lower in cost with a low temp Variable Air Volume (VAV) system, and will generally cost less than a water-cooled chiller system. This is due to new system design synergy. For example: a smaller electrical system, smaller air-handling units or fans, and/or smaller chillers, and no cooling towers. Grants or utility company rebates may be also be available.

Reduce water usage. If water conservation is most critical, then air-chilled systems become the obvious choice. These systems consume no water.



- A** **Trane air-cooled chillers** with built-in thermal energy storage provide water-cooled efficiency on design days in partial storage systems when paired with CALMAC® tanks, without the added cost, maintenance and complexity of a water-cooled system.
- B** **CALMAC® energy storage tanks** provide factorybuilt reliability with tested, efficient and repeatable performance. They have no moving parts, are made of non-corroding materials, have a 10-year warranty and require little maintenance.
- C** **Optional System completion module** provides single-source responsibility including a preengineered pumping system, single-point power and control connection, factory-mounted Trane controls, installation logistics, start-up and commissioning coordination, warranty and technical support.

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This Thermal Battery System includes an optional system completion module, customizable standard control sequences, operator graphics, reports, drawings and guide specifications.

Features include:

- BACnet™ system controller
- Customizable standard sequences
- System scheduling
- Six modes of operation:
 - Off
 - Chiller only - single and multiple chiller
 - Ice only •Chiller and ice
 - Make ice
 - Make ice and cool
 - Smart system mode determination
- Chiller plant demand limiting
- Ice inventory management
- Chilled fluid system control
- Chiller/ice sequencing and control
- Color graphic chiller and plant status screens
- System and chiller diagnostic messages
- System and chiller reporting
- Failure modes and recovery
- Heat exchanger sequencing and control (option)
- Pump control for water loops (option)