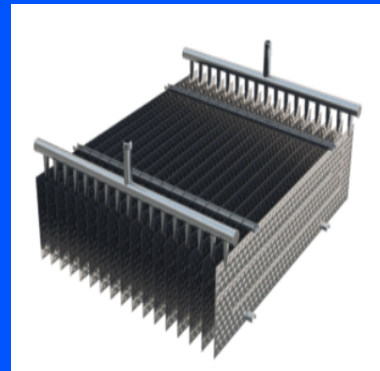




CST 'IntelliCool' Hybrid Tower



**Engineered for Extreme
Conditions**



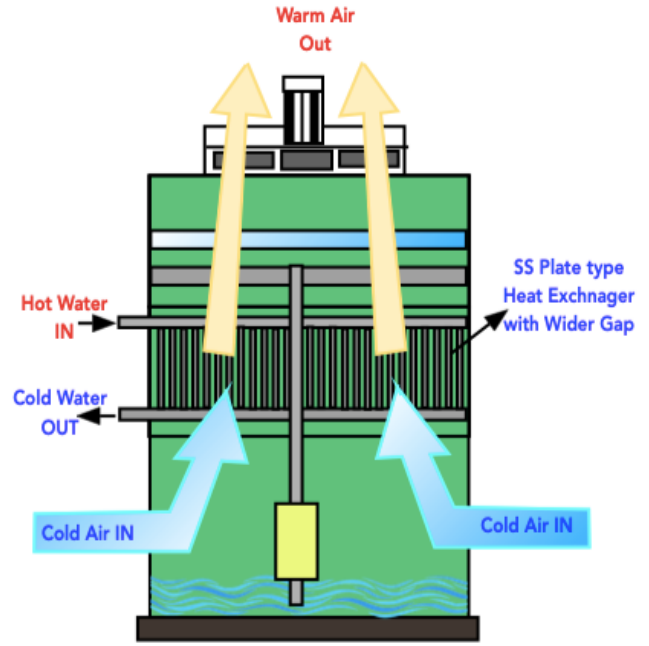
CST 'IntelliCool' Hybrid Tower

- Efficiency Meets Innovation

Dry Operation

The CST IntelliCool Hybrid Tower is engineered to operate at higher dry bulb switchover temperatures compared to traditional systems with bare-tube designs. This efficiency is achieved through the use of a wide-gap plate-type heat exchanger made of stainless steel plates, fully exposed to the airstream. The combination of multiple plate rows and incoming cool air allows for dry operation when heat load and ambient conditions are favorable.

The ability to manage cooling demands without engaging the spray pump results in significant water and energy savings. This makes the system highly versatile and ideal for various applications, including commercial HVAC systems, data centers, industrial processes, water source heat pumps, critical chilled water facilities, manufacturing plants, steel mills and many more.

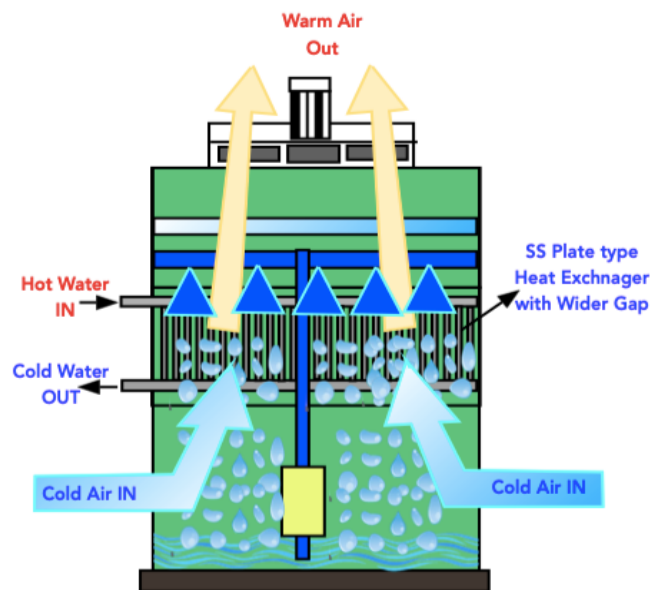


Dry Mode

Wet Operation

The process fluid is circulated through the plate-type heat exchanger of the closed circuit cooler. Heat from the process fluid is dissipated through the stainless steel plates to the water cascading downward over the plates. Simultaneously, air is drawn in through the air inlet louvers at the base of the cooler and travels upward across the plates, opposite to the water flow. A small portion of the water evaporates during this process, removing the heat from the system.

The warm, moist air is then drawn to the top of the cooler by the fan and discharged into the atmosphere. The remaining water collects in the sump at the base of the cooler, where it is recirculated by a pump through the water distribution system and flows back over the heat exchanger plates.

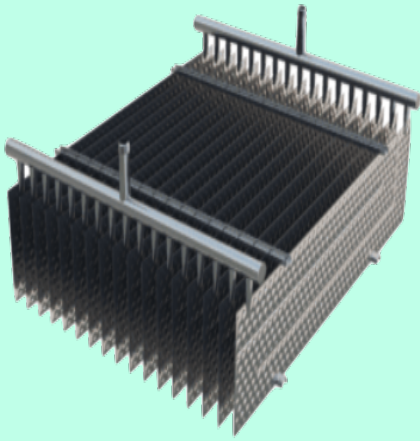


Wet Mode



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Heat Exchanger, Closed Loop

At the heart of the cooling tower is the stainless steel plate heat exchanger. These tubeless heat exchangers are highly efficient compared to traditional bare tube or finned tube designs.

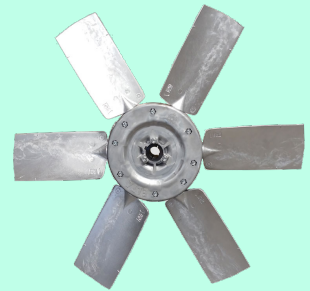
In dry mode, air flows over the plates while water circulates through the interior. In wet mode, water is periodically sprayed onto the plates by a recirculating pump, allowing the air to pass over the surface water and facilitating evaporation. This process effectively cools the water flowing inside the plates.

The wide gaps between the plates allow for optimal air circulation, enhancing heat transfer efficiency. Additionally, the plates are made of polished stainless steel, which minimizes dust accumulation and ensures clean operation.

Fan and Motor

The cooling tower is equipped with fans constructed from an aluminum hub and either aluminum or PAG blades, ensuring maximum energy efficiency. The blade angles of these fans can be adjusted manually on-site if necessary, allowing for optimal performance under varying conditions.

The system utilizes three-phase electrical motors rated at IE3, providing high efficiency and reliability. For applications in particularly harsh environments, we also offer motors with an IP65 rating, in addition to the standard IP55 rating, to ensure robust protection against dust and moisture.



Water Spray Pump

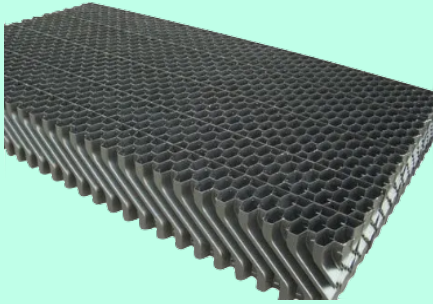
Our cooling towers are equipped with factory-fitted centrifugal inline pumps. These pumps draw filtered water from the drain pan and deliver it to the spray header, where it is evenly distributed over the plate-type heat exchanger.

As a standard feature, all pumps are fitted with stainless steel impellers and are rated at IP55 for reliable performance in various environments. Each unit undergoes thorough testing in the factory to ensure uniform water spray distribution, guaranteeing optimal cooling efficiency.



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Mist Eliminator

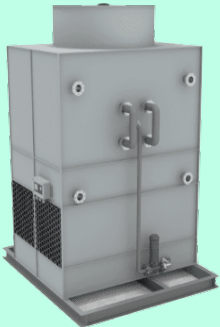
Our cooling towers feature a specialized mist eliminator made from high-performance plastic, designed to effectively capture fine water droplets from the airstream. This ensures that droplets do not escape into the atmosphere, enhancing water conservation and minimizing environmental impact.

Constructed from durable, corrosion-resistant plastic, the mist eliminator provides long-lasting performance in harsh conditions. Its lightweight design allows for easy installation and maintenance, while reducing drift loss to optimize the cooling system's efficiency and lower operational costs.

Metallic Air Filters

Metallic air filters are installed at the air intake on the suction side, effectively capturing major dust particles before they enter the cooling tower. Constructed from galvanized iron (GI) wire mesh, these filters are designed for durability and ease of maintenance.

Cleaning is straightforward; the filters can be removed without the need for tools and can be easily cleaned using a water pressure gun. This user-friendly design ensures that the filters can be maintained efficiently, helping to sustain optimal airflow and enhance the overall performance of the cooling system.



Stainless Steel Body

The body of the cooling tower is fabricated from SS 202 as the standard material, with options available in SS 304, SS 316, or SS 316L to meet specific customer requirements. This robust construction ensures years of trouble-free operation, providing durability and reliability in a variety of environments.

Factory-Fitted Control Panel Box

Each unit is equipped with a factory-fitted control panel box that includes a variable frequency drive (VFD) controller, allowing for precise fan motor speed adjustments based on operational requirements. The water spray pump features a timer to optimize performance in both dry and wet modes.

The control panel encompasses all necessary components and instruments, facilitating seamless operation and enabling the unit to efficiently switch between dry and wet modes. This design ensures trouble-free operation throughout all seasons and under varying conditions, enhancing reliability and efficiency.





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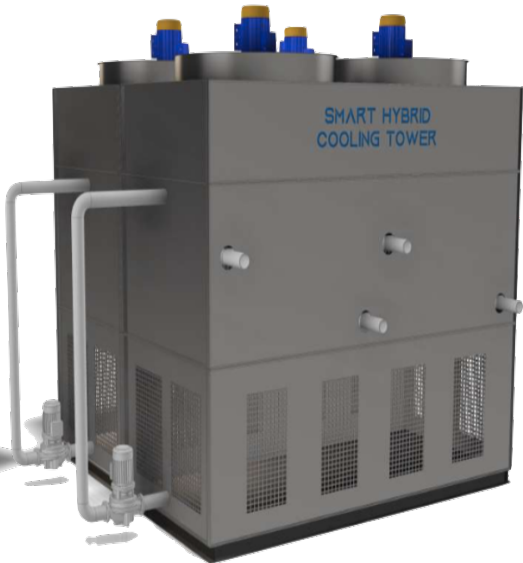
Technical Specifications



CST 1 CLAC
(25 to 50 Tr.)



CST 2 CLAC
(51 to 125 Tr.)



CST 3 CLAC
(126 to 200 Tr.)

Model Number	Dimensions (MM)			Fan Motor	Pump	Connections (NB)	
	Length	Width	Height	KW	KW	In	Out
CST 1 CLAC	1524	1675	2049.6	7.5 X 1No.	1.5 X 1 No.	4" X 1 No.	4" X 1 No.
CST 2 CLAC	1524	3000	2049.6	7.5 X 2No.	2.2 X 1 No.	4" X 2 No.	4" X 2 No.
CST 3 CLAC	3048	3000	2049.6	7.5 X 4No.	2.2 X 2 No.	4" X 4 No.	4" X 4 No.

Please Note: The specifications provided are for general cooling units. The power ratings for the fan motor and pump may vary depending on the heat load. For precise requirements, please consult with the company.

CST EnviroTech

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STP Water Utilisation & Fresh Water Savings

Revolutionising cooling performance whilst preserving precious freshwater resources through intelligent system design.

STP Water on Evaporation Side

Utilisation of STP-treated water exclusively on the evaporative (wet) side of the hybrid cooling tower, completely eliminating the need for potable water in cooling operations. This innovative approach ensures optimal cooling efficiency whilst maximising the value of reclaimed water resources.

Closed-Circuit Cooling Design

Process and chilled water circulate in a fully closed loop system, ensuring zero contamination risk and maintaining stable thermal performance. The sealed design protects critical equipment whilst delivering consistent cooling capacity across all operating conditions.

Massive Fresh Water Conservation

Enables savings of millions of gallons of fresh water every year, significantly reducing dependency on municipal water supply. This substantial conservation impact supports both operational efficiency and environmental stewardship goals for forward-thinking facilities.



Reimagining STP Water Use: From Gardening to Cooling

This innovative approach shifts STP water usage from seasonal landscaping applications to continuous, mission-critical cooling operations. By repurposing reclaimed water for industrial cooling processes, facilities achieve a dual benefit: enhanced operational reliability and dramatically improved water efficiency metrics.

The transition from intermittent irrigation use to constant cooling applications maximises the utility of every gallon of treated water, creating a sustainable closed-loop system that operates 365 days per year.



Operational & Sustainability Advantage

Year-round utilisation improves water efficiency, reduces operating costs, and enhances system reliability through consistent cooling capacity and reduced maintenance requirements.



ESG & Environmental Impact

Supports ESG goals, water-positive infrastructure initiatives, and qualifies for green building certifications such as LEED and GRIHA, enhancing corporate sustainability credentials.

The Complete Sustainability Solution



This integrated approach represents the future of industrial water management, where every drop of treated water serves a strategic purpose in maintaining critical operations whilst protecting natural resources.

100%

Potable Water Elimination

Complete replacement of fresh water with STP water in evaporative cooling processes

365

Days of Operation

Year-round utilisation maximising water efficiency and system reliability

1M+

Gallons Saved Annually

Millions of gallons of fresh water conserved each year per installation

Business Benefits

- Reduced municipal water costs and utility expenses
- Enhanced operational resilience and system reliability
- Improved facility efficiency ratings and performance metrics
- Lower carbon footprint through optimised water usage

Environmental Impact

- Significant reduction in freshwater extraction
- Support for water-positive facility operations
- Alignment with LEED and GRIHA certification requirements
- Contribution to corporate ESG and sustainability targets

Calculate Your Water Savings

Request Technical Consultation