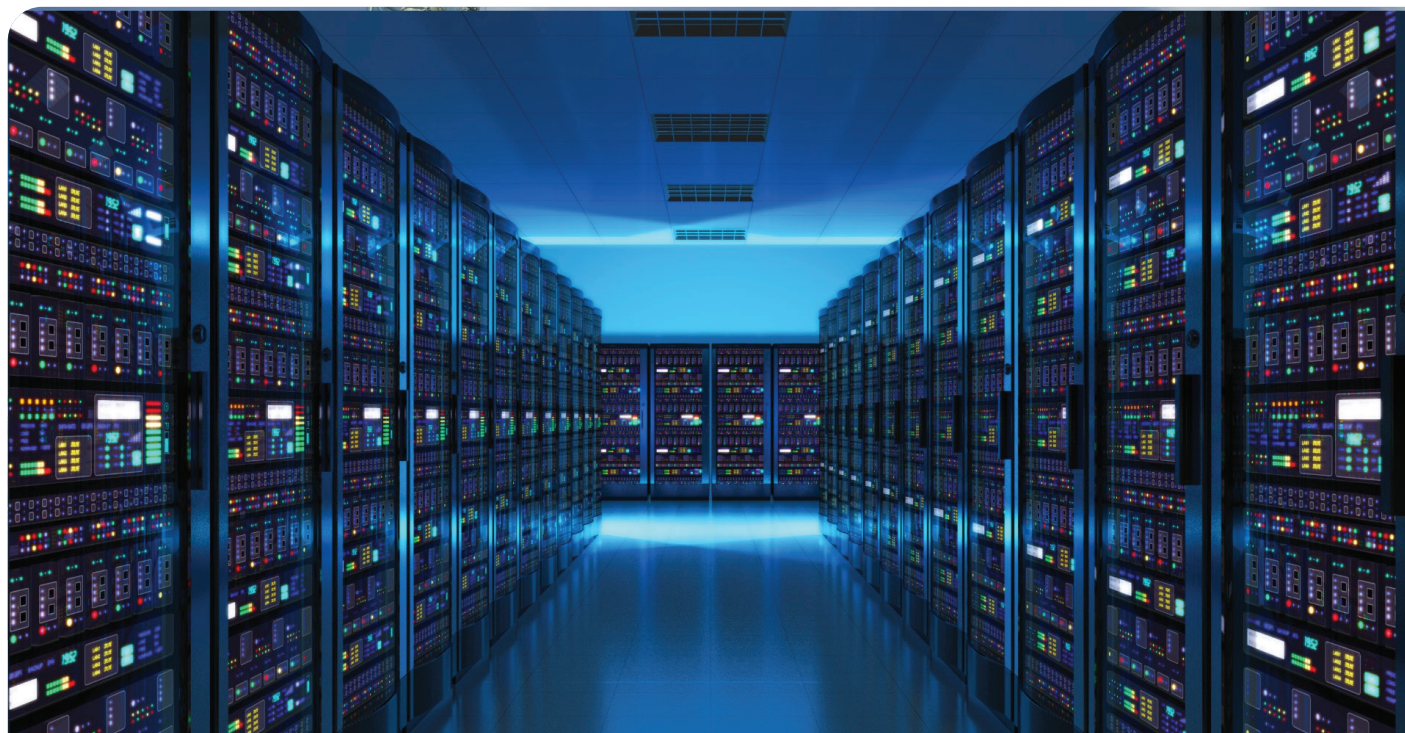


# Thermax Achieves 80% Water Savings for a Data Centre using Adiabatic Cooling Tower

**Customer:**

A Leading Data Centre

**Location:**

Pune, India

**Industry:**

Data Centre

**Total Capacity:**

150 kW

**Application:**

Cooling for Supercomputer Panels

**Cooling Water In/Out:**

46°C/35°C

**Customer Description**

A Leading Data Centre in Pune houses a high-performance computing facility, which requires reliable and efficient cooling solutions to maintain optimal operating conditions. To achieve this, the institute implemented an advanced liquid cooling system using our Thermax's Adiabatic Dry Cooling Tower (ADCT) for glycol cooling. This case study highlights the system's design, operation, and key benefits, focusing on the role of the ADCT in maintaining efficient cooling for the institute's supercomputer.

**Project Overview**

The implementation of the ADCT for glycol cooling at the Data Centre demonstrates an efficient and reliable approach to maintaining the cooling requirements of a data centre housing a supercomputer. With stable cooling water temperatures, a 150 kW ADCT, and a well-designed heat exchanger system, the solution ensures optimal performance of the computer while minimizing energy consumption and operational costs.

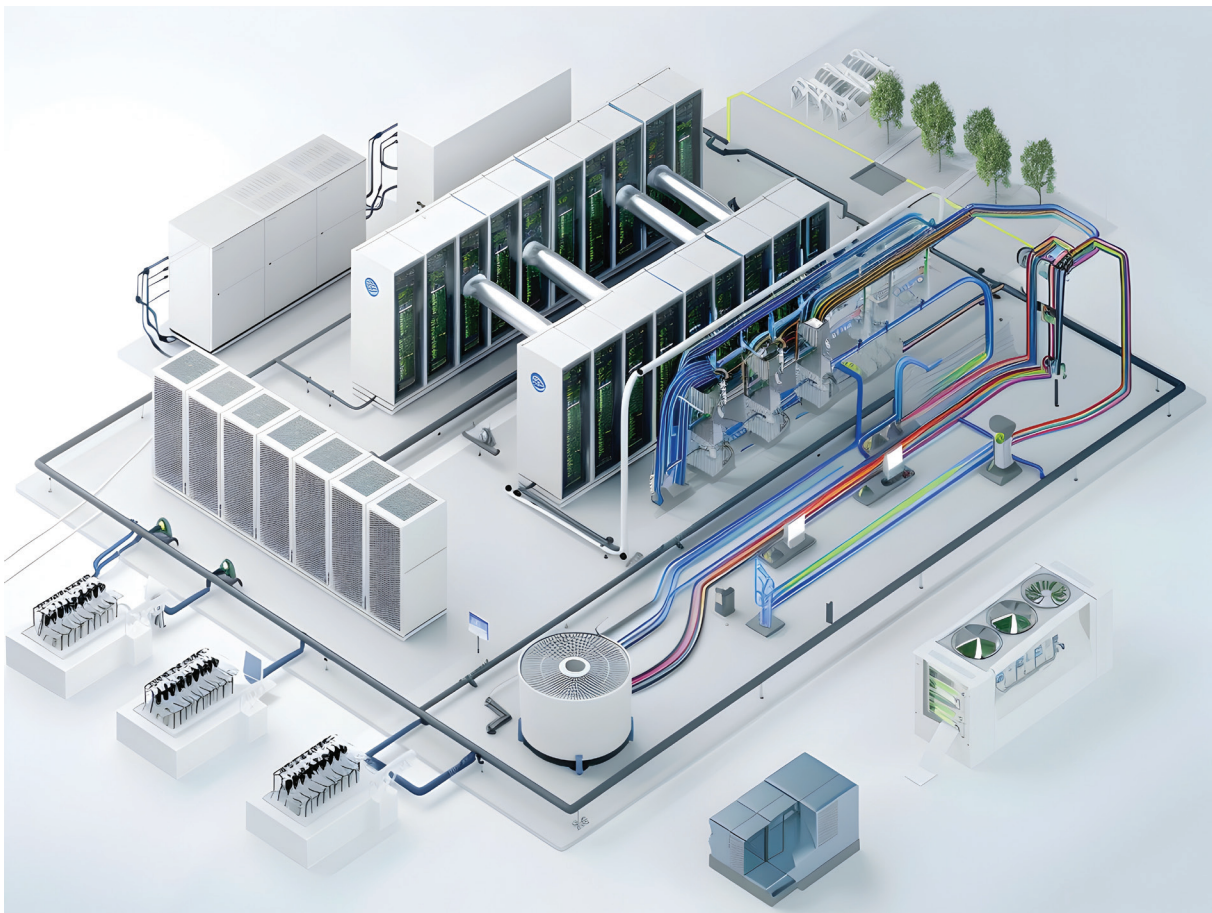
# Highlights

- 1. Efficiency:** The use of an ADCT with a 150 kW capacity ensures efficient heat dissipation, making it well-suited for the heat load generated by the supercomputer at the Data Centre.
- 2. Temperature Stability:** The 46°C to 35°C cooling water temperature range provides effective heat exchange with the glycol, ensuring the supercomputer' panel are maintained at an optimal operating temperature.
- 3. Reliability:** The liquid cooling approach, which leverages glycol as a coolant, offers higher reliability compared to traditional air-cooling systems, especially for high-density computing applications like supercomputing.
- 4. Energy Savings:** Utilizing a closed-loop liquid cooling system reduces the energy consumption typically associated with mechanical cooling systems contributing to operational cost savings and sustainability.

## Project Description

Data centre air-conditioning is a mission critical application as maintaining temperature in a data centre is essential for proper functioning of the servers and preventing the event of component failure. Thermax has launched its Adiabatic Dry Cooling Tower, designed to absorb heat from the supercomputer panels through a glycol loop system. The glycol is circulated and cooled via a heat exchanger that transfers the absorbed heat to cooling water.

The cooling water flowing through the ADCT enters at 46°C and exits at 35°C. The heat exchanger facilitates the transfer of heat from the glycol to the water. Once cooled, the glycol recirculates to cool the panels, maintaining a stable temperature within the system.



## Scheme

- 1. Cooling Water Circuit:** The cooling water is circulated through the ADCT, where it releases heat to the atmosphere and cools down from 46°C to 35°C.
- 2. Glycol Circuit:** After exiting the ADCT, the cooled water passes through a heat exchanger, cooling the glycol fluid used in the liquid cooling loop for the supercomputer.
- 3. Supercomputer Cooling:** The glycol absorbs heat directly from the panels, ensuring consistent cooling and preventing overheating during peak performance.



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