

Faster Data Center Deployment with Integrated High-Performance Chiller Plant in Beijing, China



Challenge

In the age of AI and rapid computational growth, data centers must scale quickly. However, traditional cooling systems, with their extended construction timelines and complexity, can pose challenges to deployment schedules. A leading data center in Beijing, China, aims to develop a cooling system that can be rapidly deployed, is highly efficient, and supports sustainability goals.

Solution

Trane's integrated high-performance chiller plant addressed these challenges with a modular, pre-fabricated design for rapid deployment. To meet the 9,600 RT cooling demand, multiple variable-speed centrifugal chillers and water-source heat pumps were installed, supported by a robust thermal management system and an advanced control system for efficient and stable operation.

Result

- **Reduced Lead Time:** The highly integrated modular design and 85% prefabrication of equipment significantly reduce lead time.
- **Compact Design:** Trane's Packaged Chiller Plant (PCP) integrates chillers, pumps, and cooling towers into a compact, three-layer structure, reducing space requirements by one-third compared to traditional systems.
- **Improved Efficiency:** Annual operational efficiency improves by 20% to 50%, delivering year-round, uninterrupted cooling performance.
- **Energy Savings:** Cuts annual power consumption by 16.58 million kWh.
- **Carbon Reduction:** Lowers emissions by nearly 10,000 tons annually.

This project won an award in a national engineering design and application technology competition in China, showcasing Trane's excellence in providing top-tier HVAC solutions for data center cooling.

Project Highlights

Market: China

Segment: Data Center

Products and Services offered:

- Packaged Chiller Plant
- 8 x CVHF chillers
- 2 x water source heat pumps
- Thermal management system
- Chiller Plant controls

Featured Products



Product name: Packaged Chiller Plant

At a glance:

- Capacity Range: 1200 RT
- Refrigerant: R-514A
- Pre-fabricated assembly and compact integration in a three-layer structure.
- Plug-and-Play Deployment: Installation and commissioning completed in just three days
- Energy saving technologies such as renewable energy solutions and large-temperature-difference water systems.



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