



CASE STUDY

Data Center

Facility at a glance

Name

Herakles Data

Location

Sacramento, CA USA

Facility size

52,500 ft² facility

Issue

Cooling was inadequate or unreliable

Solution

6 - Daikin Modular Central Plants (MCP)

Herakles Data's 52,500-sq ft co-location data center in Sacramento, California.

Herakles Data Gains Increased Capacity and Energy Savings with Mission Critical Installation of Daikin Modular Central Plants

Positioning itself as the ultimate data center, Herakles Data of Sacramento, California, offers uninterruptible power, improved cooling and redundant internet bandwidth to its co-location customers seeking to outsource their primary or disaster recovery IT infrastructure. At a co-location data center, corporations rent specific spaces to operate their data servers, along with the servers of other companies, in a common physical location.

With all the critical servers housed in the facility generating heat, cooling is critical for the data center. "Cooling is essential to our business, in fact it's the number two essential factor after uninterrupted power for our customers," said Laurence Stancil, director of facilities at Herakles Data.

Herakles Data President and CEO Lou Kirchner stresses how essential cooling is to their success. "We've had customers come to us after leaving a previous data center because cooling was inadequate or unreliable," Kirchner said. "And with the newer servers being more powerful and more compact than ever, they produce even more heat. With our facility near 100% capacity, it's critical that our cooling capacity be able to handle the heat of the newest generation of servers."

Mission-Critical Challenge

Earlier this year Herakles Data realized that its rapid business growth meant that it had outgrown the capacity of its existing four air-cooled Daikin chillers. It now needed additional capacity that could meet the demands of its mission-critical interior space and ambient temperatures that typically reach 95 degrees during the summer. "Under California's Title 24 standards, we couldn't add a fifth chiller to meet our growing capacity needs, so we had to consider alternatives outside the box," said Stancil. "Our number one requirement in selecting a new system was speed. The new cooling system had to be installed and operating as fast as possible, with minimal interruption to our cooling requirements."

A Pre-Engineered, Pre-Assembled Solution

Working with representatives from Norman Wright Mechanical Equipment Corporation, the Daikin representative in Sacramento, the facility team from Herakles Data evaluated alternative solutions and selected Daikin Modular Central Plants. Modular central plants are pre-engineered and pre-assembled from one supplier with the chiller, pumps, cooling tower and interconnected piping, and then shipped to the jobsite for final assembly. Their unique modular configuration reduces site assembly time compared to traditional "site built" cooling plants with the chiller, cooling tower, pumps and piping all coming from separate sources.

"We were comfortable going with Daikin again because we've had five years of excellent, reliable support from Daikin Service," Kirchner said.

Although he was also comfortable with Daikin, Stancil was initially skeptical of the modular central plant concept but the installation process made him a believer. "Our first four Modular Central Plants were dropped, bolted and wired – fully assembled – in a week. I'd compare it to changing a propeller in flight," Stancil said. "You have to get it right the first time. And we did. Final site assembly was a very clean process – fast, easy and efficient."

It was so fast and easy that Stancil now prefers the modular central plant concept to the traditional site-built central cooling plant. "I would never do it the old way again," he said.

Kirchner was especially pleased that the one-week installation process resulted in zero downtime for the data center saying, "It was seamless for our customers."



Each of the Daikin Modular Central Plants consists of a 500-ton Daikin centrifugal chiller pre-engineered with pumps, piping, cooling tower, control panel and associated water treatment system.

Capacity Goals Surpassed

Since June 2007, a total of six Daikin Modular Central Plants have provided chilled water to 59 computer room air conditioning units in the 52,500 square foot data center. Each of the modules consists of a 500-ton Daikin centrifugal compressor water chiller pre-engineered and pre-assembled with pumps, piping, cooling tower, control panel and associated water treatment system.

Kirchner's original goal of increased cooling capacity to meet Herakles Data's projected growth was not only achieved, but also surpassed. "We provide N+1 business solutions for our customers, meaning we meet their needs plus provide redundancy," he said. "Today, however, we have surpassed that goal because we typically run only two of the four original modular central plants. That results in 2N cooling capacity today available to our data center customers."

Energy Savings a Bonus

In addition to fast-track construction and commissioning, the new Daikin central plants resulted in impressive energy savings compared to the old system. "Our old system used 3,600 Kwh/ton a day; the new system uses 2,800 Kwh/ton a day for a 22% reduction in energy," Stancil added. That reduced energy usage earned a \$50,000 rebate from the Sacramento Municipal Utility District to Herakles Data for the new system.

With the energy savings, the benefits of the Daikin Modular Central Plant extend beyond the initial benefits of the fast, easy installation. "Those energy savings were a very good bonus," Stancil said. "With our new modular central plants, we not only got the increased capacity that we needed, we also got significant energy savings over the life of the equipment."

"The Only Way to Go"

Kirchner sums up the entire experience as phenomenal. "Modular central plants are a simple yet brilliant solution to today's business requirement for consistent, quality design and zero downtime. It's the only way to go."



Four of the six Daikin Modular Central Plants that provide mission critical cooling for the Herakles Data Center.