



Orange Place increased occupancy by 25 percent with chiller upgrade.

Turnkey Service Solutions Improve Energy Savings by 45 Percent

ISSUE:

Energy efficient design and reduced lifecycle features of the Daikin Magnitude® chiller won over the competition for new owners of a multi-use office building near Cleveland, OH. After acquiring the six-story building in suburban Beachwood, the owners set out to refurbish, upgrade and modernize the 1974-built facility, including replacement of the original (over 40-year-old) chiller.

At 400-ton capacity, the existing centrifugal water-cooled chiller was not only failing, but was extremely expensive to operate. To ensure reliable cooling while replacement options were considered, a rental chiller was put in place during the cooling season.

SOLUTION:

Owners explored options for a permanent chiller replacement. The Daikin Magnitude exceeded the standard design requirement and delivered superior energy-saving operation that outpaced the competition. "Daikin flat out offered an outstanding selection that exceeded all other bidders' offerings. The owners trusted the difference the Daikin Magnitude chiller would make in reliable, cost-saving operation," said Bob Ambrose, P.E., C.E.M., regional business development manager at Daikin in Cleveland.

Owners appreciated the variable-speed design of the compressors on the Magnitude chiller which generates up to 35 percent greater energy efficiency than standard chillers. In addition, the oil-free compressor design of the chiller and services provided by Daikin (such as integrated monitoring of the chiller during warranty periods) all contribute to low maintenance costs and long product lifecycle.



NAME:

Orange Place

LOCATION:

Beachwood, OH, USA



FACILITY SIZE:

133,000 ft²



ISSUE:

Upgrade to state-of-the-art, energy efficient chiller to save on operating costs and improve building occupant comfort



SOLUTION:

(1) 290-ton Daikin Magnitude® dual-compressor magnetic bearing chiller

SOLUTION (CONTINUED):

“We had a 290-ton chiller in stock which made it an attractive package to the customer for imminent replacement of the rental chiller,” added Eric Swain, C.E.M., client solutions manager at Daikin in Cleveland.

The new frictionless, magnetic bearing chiller was installed in the building’s mechanical plant located on the roof of the building in March. That season, other rebalancing and reconditioning of existing mechanical equipment and the building’s automation system were made, including replacing the chilled water and tower water pumps to serve the cooling flow requirements of the new Daikin chiller.

Owners of the Orange Place building began to see immediate savings in their utility bills. Later in the year, a second phase of the mechanical upgrade included replacing the building’s cooling tower and retrofitting the two major air handlers from inlet guide vanes to variable frequency drives (VFDs). In addition, the turnkey solution provided by Daikin included enhancing the building automation system (BAS) to realize greater operating cost savings.



The new Daikin chiller is lifted onto the Orange Place building for installation in the penthouse mechanical room.

OUTCOME:

Since installation, indoor air comfort has improved throughout the building’s leased spaces and public areas. Property management company Neyer Management of Cincinnati manages the building and selected a five-year, extended-warranty service agreement to include preventative maintenance on the equipment by Daikin Service.

The new Magnitude chiller, pumps, VFDs, and other ancillary equipment are yielding owners approximately 45 percent savings on their electrical utility bills, equating to roughly \$58,000 to \$64,000 per year.

In the near future, additional mechanical improvements at Orange Place include converting the boiler system to gas from electric for additional energy savings.

Concurrent with other improvements made, leased occupancy of the office and medical building has increased by an impressive 25 percent. Tenants and visitors are appreciative of the improved indoor air comfort, as are the building’s owners who also welcome the improved energy savings.

Energy Savings Summary



Annual energy savings:
45% estimated after replacement

Cost savings:
\$58,000 to \$64,000 annually

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– Eric Swain, C.E.M., Client Solutions Manager, Daikin