



DRIVING EFFICIENCY

Free Cooling Chiller Drives Efficiencies at Global Auto Manufacturer's Data Center



MLC-FC FREE COOLING SCREW CHILLER

ABOUT THE CHILLER

MLC-FC Free Cooling screw chiller with N+1 redundancy design. Motivair built four (4) semi-custom units with specialized fans and oversized condensers to maximize free-cooling based on the geographical location of the data center. The cooler winter months would provide the auto manufacturer with significant energy savings by utilizing this technology.

Entertainment and streaming content delivered to your car's dashboard, blue tooth functionality and even self-driving car functionality make our vehicles operate more as computers than as traditional automobiles.

Technological advances in the auto industry are happening every day and require large-scale data centers to keep up with amount of computing taking place within the vehicles, as well as to store and analyze the massive amount of information collected.

To this point, a Top 5 global automotive company located in Ohio was looking to increase data storage by building a large 38,000-square-foot data center. With this much data running through the facility, an efficient cooling solution was imperative.

CHALLENGE

A common challenge for cooling a data center, or any mission critical facility, is trying to balance efficiency gains without sacrificing performance and reliability.

If the equipment or the facility is not cooled properly it can significantly reduce the longevity of the equipment, the reliability of the equipment (in this case computer servers) or worse, cause complete equipment failure.

Therefore, redundancy becomes critical since uptime is imperative for a data center.



SOLUTION

In the case of this data center in Ohio, Motivair recommended a MLC-FC Free Cooling screw chiller with its N+1 redundancy design. As the innovator of Free-Cooling technology with over a decade of application experience, Motivair built four (4) semi-custom units with specialized fans and oversized condensers to maximize free-cooling based on the geographical location of the data center. The cooler winter months would provide the auto manufacturer with significant energy savings by utilizing this technology.

The refrigeration plant within the MLC-FC units are designed to cool the designated heat load during hot summer months. When ambient temperatures fall over night or during cooler season weather, the “free cooling” coil is utilized.

The “Free Cooling” copper tube/aluminum fin coil works by drawing cold ambient air across its surface when the ambient temperature is below the desired water/glycol set point of the chiller. By doing this, the MLC-FC is rejecting part or all of the heat in the water/glycol system to atmosphere before the fluid reaches the refrigeration plant.

The refrigeration plant recognizes that either some or all of the heat of the system is not present and therefore runs less or not at all. A motorized valve sensing ambient and process fluid temperature controls whether the “Free Cooling” is activated and to what extent. Energy savings in areas with cooler winter months, such as Ohio, are substantial. Wear and tear on chiller components is reduced dramatically due to fewer run hours during winter months. Automatic switching between refrigerated cooling and “Free Cooling” allows for optimal performance year-round.

In addition to the energy savings realized by utilizing the Free-Cooling design, Motivair recommended a N+1 redundancy design to ensure system availability in the event of component failure, which would be catastrophic in a data center. A N+1 design means that a baseline of components (N) are backed up by an additional component (+1). Data centers and mission critical facilities often require a N+1 configuration depending on the facility’s level of redundancy, which is often determined by the Tier Classification Method developed by Uptime Institute.

Motivair’s Service and Support team brought additional value to the customer when they were evaluating a cooling solution. Based in Buffalo, New York, Motivair’s dedicated support team is available to assist all customers throughout the life of the chiller with technical support, spare parts sales, warranty support and maintenance questions via phone or its online service portal.

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COOLING SOLUTIONS