

Background

Arctic was sought to design and manufacture a 1,400 ton chiller as part of a combined cooling and power requirement at a California data-center. The desire was to gain the sustainable oil-free benefits and inherent redundancy of the Turbocor compressors and qualify for the deepest utility rebates.

Challenge and Solution

While Arctic's people have unmatched experience with the Turbocor compressor, no company had ever built a 1,400 ton water cooled chiller. No heat exchangers designs with seven TT500 compressor existed. And our new generation Tridium Chiller and Chiller Plant Controllers were still in development.

The solution is properly aligned resources both within the factory and at the site, where we enjoyed excellent project management by Qualcomm staff and Arctic's representative.

Customer: Qualcomm, San Diego

Industry: Telecommunications

Product Solution: Arctic Cool 1,400 chiller

Business Need

Provide reliable critical backup chilled water services in a combined cooling and power project with natural gas turbines, absorption chillers and high-efficiency Arctic Turbocor chillers.

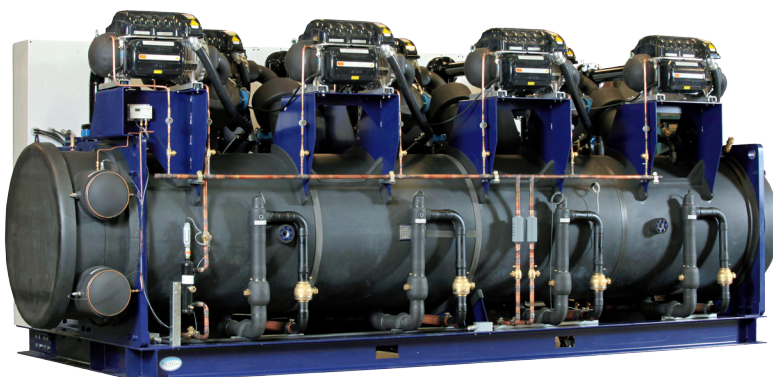
The chillers must provide critical duty service and employ open-protocol industrial strength controls connected to their network.

Solution Results

The new systems are under construction.

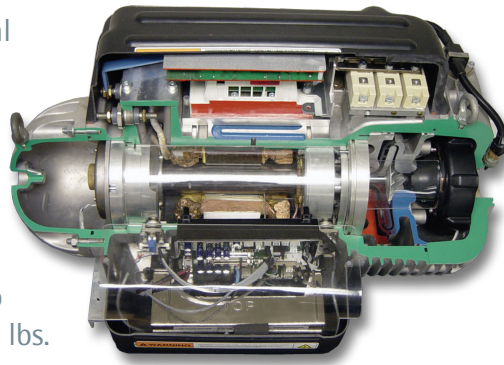


Danfoss
TURBOCOR



The Danfoss Turbocor compressor with Arctic Cool's dedicated Danfoss controls built by the manufacturer from the ground-up to leverage ALL of the features, functions, communications and efficiencies possible!

- Two stage direct-drive centrifugal compressor is simplest and most efficient type of compression.
- Impellers keyed to magnetized shaft results in one moving part.
- Permanent magnet motor is 95% efficient. Compressor weighs 300 lbs.



- Oil-Free operation delivers lowest operational costs and remains the only sustainable approach.
- Built in VFD drive matches the load to the compressor speed.
- Magnetic bearings self center over 100,000 per second to support high speed magnetic drive.

Extraordinary chiller efficiency produce savings of 30 to 50% annually on compressor energy costs alone. Excellent for VFD pumping.



Danfoss Controls Deliver Highest Reliability

Our chiller design engineers know the Turbocor compressor well. As an early adopter we leverage combined experience including a wider diversity of successful applications, learned nuances, and integrated controls that can take advantage of all the compressor and its onboard controls can provide.

So we selected Danfoss for their latest generation controller built to leverage their remarkable compressor completely, correctly and safely. Our customers obtain the highest combined effect of reliable service, support and sustainable economy.

In order to power this seven compressor chiller, Arctic finalized development for ArcticJACE, which includes leading edge compressor controls, chilled water pump, tower fan, bypass valve and system resets. Systems for complete Chilled Water Utility Plants are also available with Open Protocol Tridium JACE technology.



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