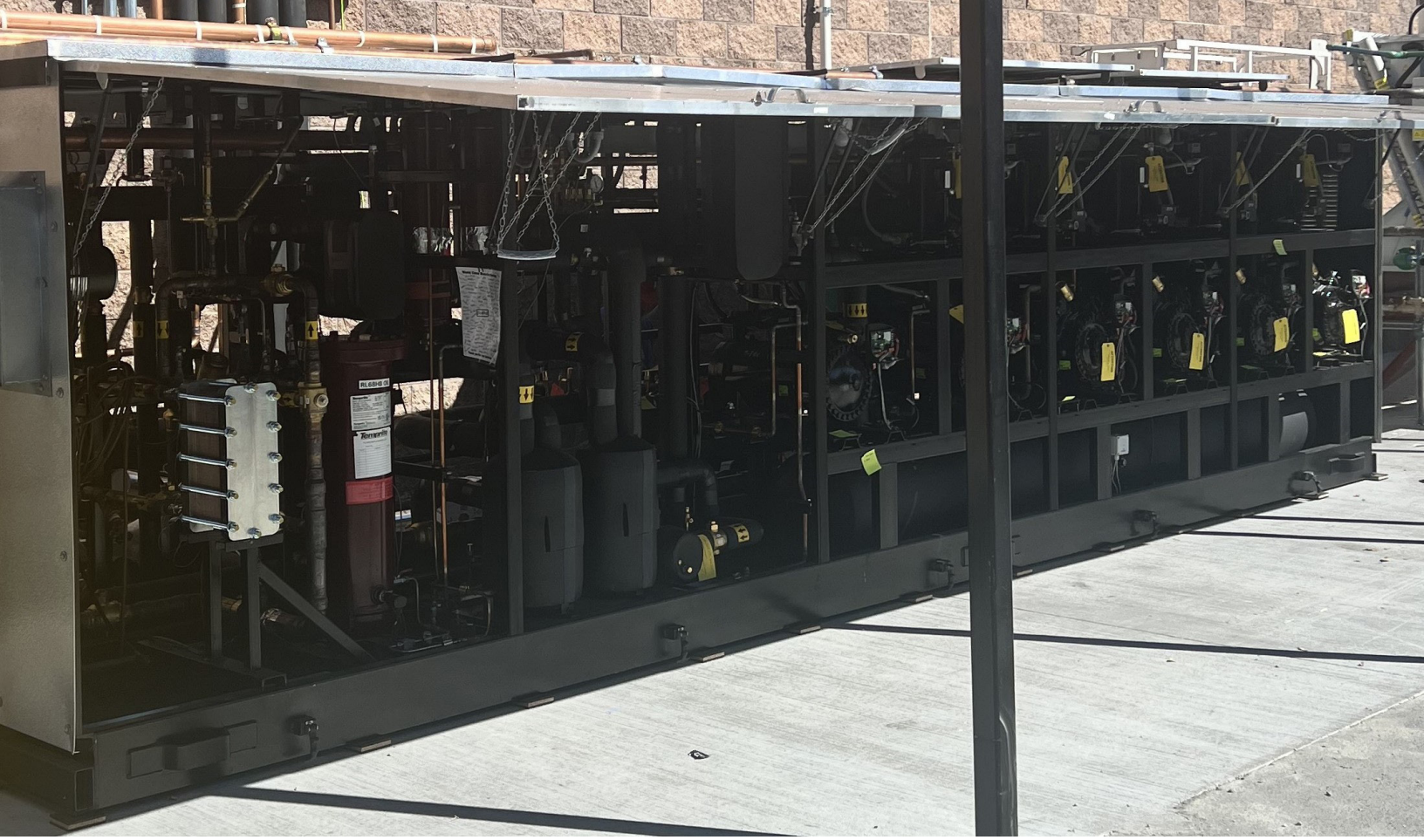
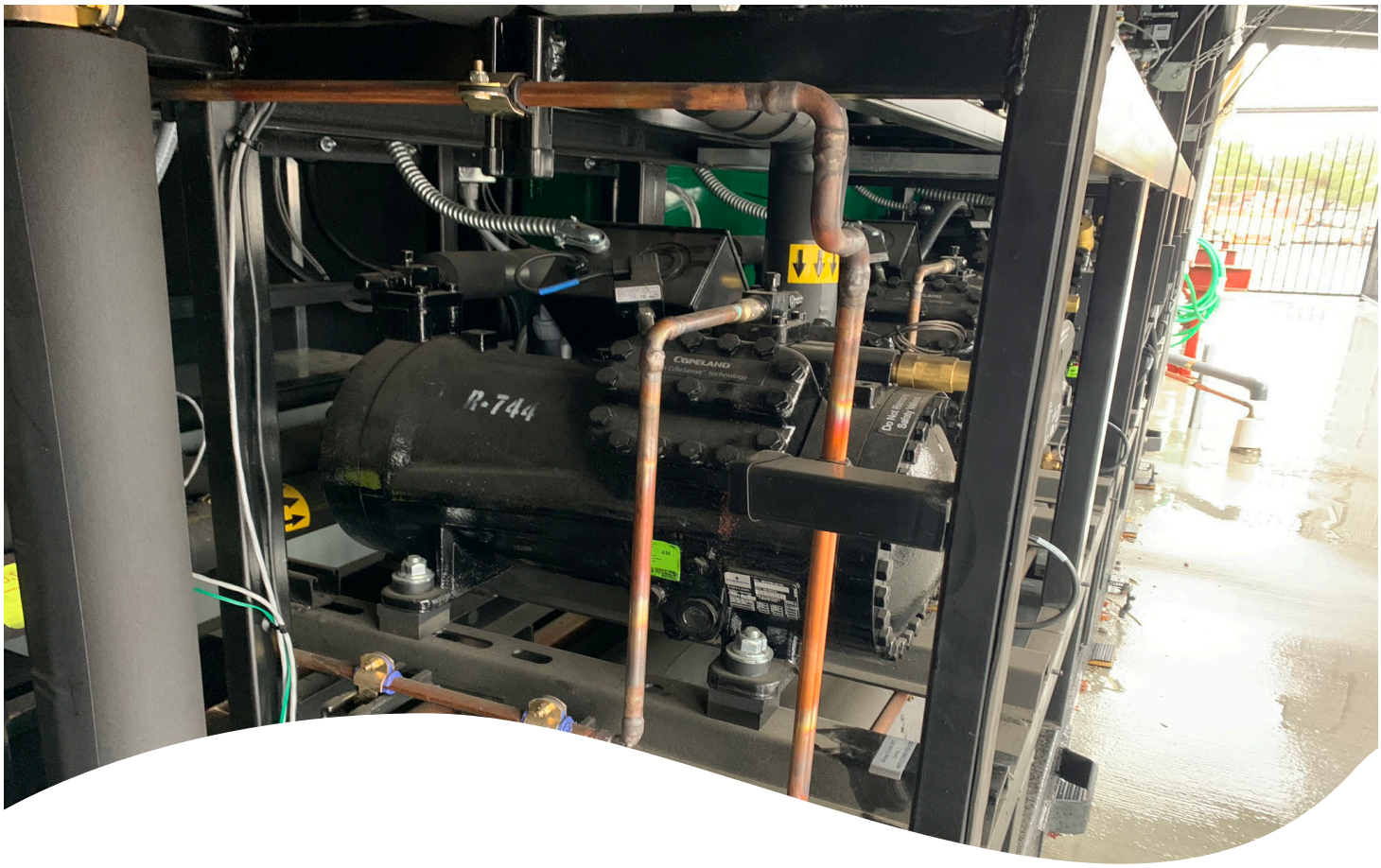


GENESYS® CO_2: EFFORTLESS COORDINATION AND SEAMLESS INSTALLATION

A MEMBERSHIP CLUB CASE STUDY

Genesys natural by ZERO ZONE®



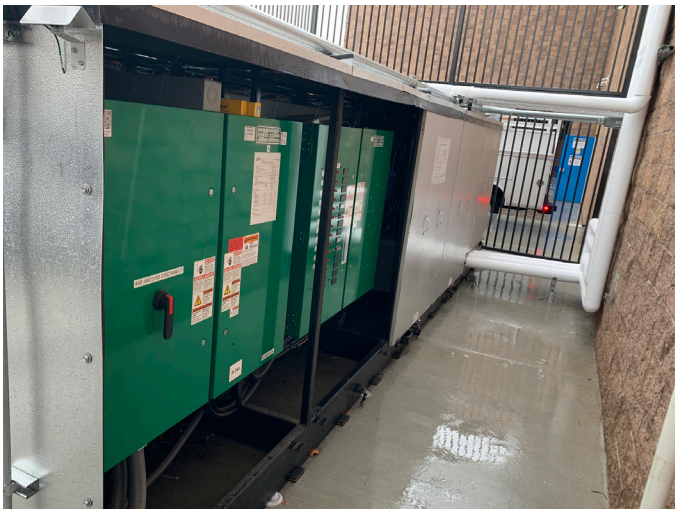
Genesys® Natural Solutions in Southern California

Do you know the refreshing feeling of entering a walk-in cooler on a hot day? Zero Zone has made this experience possible at a store in Palmdale, California, in October 2023.

Overview

The customer is a large format retail grocer with a footprint of over 100,000 ft^2. They required refrigeration for meat, dairy, produce, beverages, and frozen foods. Four walk-in coolers and more than 20 display cases keep their products fresh for their customers. The customer is a membership club whose average clientele ranges from individual shoppers to restaurants and other retailers. They chose a Zero Zone Genesys® Natural Refrigeration Solution to replace their HFC system in order to meet their long-term internal sustainability goals and to get ahead of the EPA's HFC phase-down. The customer also stated that the low cost of ownership for a CO_2 system greatly influenced their decision.

Since the store was in operation, the installation needed a high degree of precision to prevent loss of the customer's product and interference with the shoppers' in-store experience. The collaboration between the customer, their contractors, the customer's Engineer of Responsibility, Zero Zone vendor partners, and Zero Zone needed to be seamless to deliver accurate staging and have no impact to the store's operation during installation.



Power Distribution Panel

The Refrigeration System

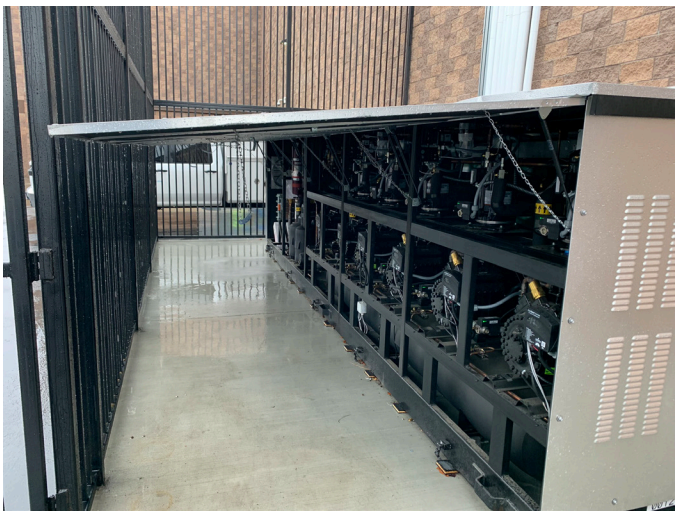
This system needed to produce cooling for both low and medium temperatures. The low temperatures needed to operate at a capacity of 479,000 btu/hr and the medium temperatures needed 649,000 btu/hr. This transcritical CO_2 system with parallel compression needed to fit into the stores distributed architecture, which is unique. Zero Zone is experienced with designing custom-tailored systems to make certain they fulfill the requests set by the customer and has once again delivered on that promise.

This Zero Zone Genesys® is a transcritical CO_2 booster system with parallel compression. It has 12 compressors: six reciprocating for medium temperatures, five scroll type for low temperatures, and one Zero Zone Genesys® parallel compressor. An adiabatic gas cooler was added to relieve stress on the compressors from excess heat. Additionally, this system has a double-walled heat exchanger to use for heating potable water, which saves floor space from being used by another appliance and increases energy savings.

Seismic anchors were installed to prevent injuries to people and damage to the unit. Refrigerant leak detectors placed throughout the system provide assurance that service can be scheduled before the product is lost.

The low-temperature side of this Genesys® system operates at -21°F and provides 40 tons of cooling to the freezers. The medium-temperature side of this system operates at 17°F and provides 54 tons of cooling.

This unit is also equipped with lift-up doors to protect it from the outside elements, provide insulation to reduce sound levels, and allow access for service.



Medium Temp Rack with Lift-Up Doors

The System Goes Online

Using a single rack to host a transcritical CO_2 booster system with parallel compression to fit a distributed architecture was an undertaking Zero Zone met with success. The staging of the loads at startup did not result in a blowout or loss of charge. Furthermore, there was no impact on the customer. A blowout or failure to start could have resulted in the product being lost as the temperatures inside the coolers and display cases rose. The perfect startup also prevented a delay in the project for troubleshooting and repair. The expertise of our engineers and vendor partners built a robust system that met the specific requirements of our customer and their contractors. Genesys®, an energy-efficient and environmentally friendly solution, successfully replaced another HFC system without a negative impact on the customer's business.

It Takes a Team

Collaboration was critical to the success of this project. The customer commended the coordination of Zero Zone, vendor partners, the contractors, and the Engineer of Record. The customer also expressed their appreciation for the attention Zero Zone dedicated to the project. Zero Zone engineers attuned their expertise to the customers vision of a transcritical CO_2 system with parallel compression and delivered another flawless startup to a Genesys® Natural Refrigeration System.

The Bottom Line

For over 60 years, Zero Zone has been a leader in refrigeration systems. Our custom-tailored applications created by state-of-the-art engineering have a legacy of reliability. You can count on expertise, support, and responsiveness with every Zero Zone product.

For more information about this Case Study, contact:

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