

This modular line of supermarket refrigeration equipment that is identical in form and function to the equipment utilized supermarkets across the country. The unique modular systems represent a self-contained plug and play design that has been in production for five years with 2000+ refrigerated cases in operation. This design is unique in the industry, it is liquid cooled and utilizes a fraction of the refrigerant of a standard system design. The liquid cooled system runs cooler and utilizes 40% to 50% less energy than standard air-cooled grocery equipment.

The self-contained design is the perfect answer for all of the issues facing the grocery refrigeration business.

- First cost advantage. Supermarkets have up to 80 individual refrigerated cabinets; there is a huge copper refrigerant piping network to supply the cases. Refrigerant charges up to 4,000 lbs. of refrigerant with an industry average leakage rate north of 20%. First cost savings in a new store would be in the \$400,000 to \$600,000 dollar range to offset piping cost. Time and materials to evacuate, charge, leak check, commission and install controls is significant all of these cost of eliminated with a plug and play system represents an additional significant cost and marketing advantage.
- The self-contained, liquid-cooled, refrigerated cabinets are easily moved into place, with the water loop, and power connected the “plug and play” system is ready to run. The unit is factory charged, test run, and the onboard variable speed drive/control module modulates a variable speed compressor, fans and connects to the centralized digital control and reporting system.
- The typical centralized air-cooled refrigeration system will utilize 7 to 10 amps. in the heat of the summer to provide the cooling for a 12 ft. refrigerated supermarket cabinet. Our self-contained system will modulate at maintain the exact temperature set point and modulate between 3.5 and 4.5 amps depending on compressor option. The total operating cost energy savings over an air-cooled centralized system is north of 40%.
- Food quality and shelf life is enhanced by the stable temperatures made possible by modulating the compressor speed to match the load. The self-contained design makes possible a “hot gas” defrost that dramatically shortens the defrost time thus keeping the product temperature stable. The hot gas defrost uses 1/6th of the energy and half the time of a typical electric heated defrost cycle.

Portability and interchangeability of the design allows for easy store marketing modifications that allows the refrigerated equipment to be re-arranged in a matter of

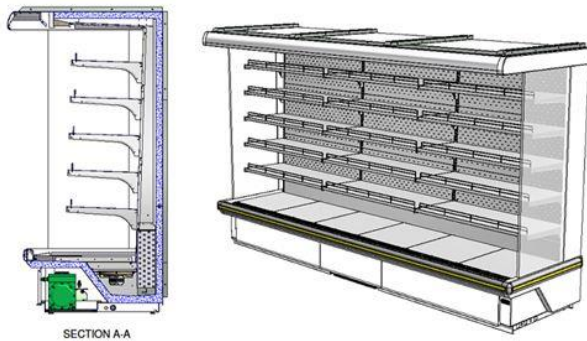
hours. Equipment can easily be moved from store to store, all of the on-board refrigeration packages utilize the same components for easy and fast serviceability. Refrigeration and water circuits have isolation valves and quick connect fittings. On board control system automatically transmits a fault signal and equipment address to initiate service.

The interchangeable refrigeration packages are available to work with most of the refrigerants available now and in the future. We have a design now under development that result in the first to market with systems utilizing natural refrigerants. We are currently designing a refrigerant package, and evaporator design that will utilize R-290, a natural refrigerant. The mechanical package will be designed to easily retrofit our existing cabinet design.

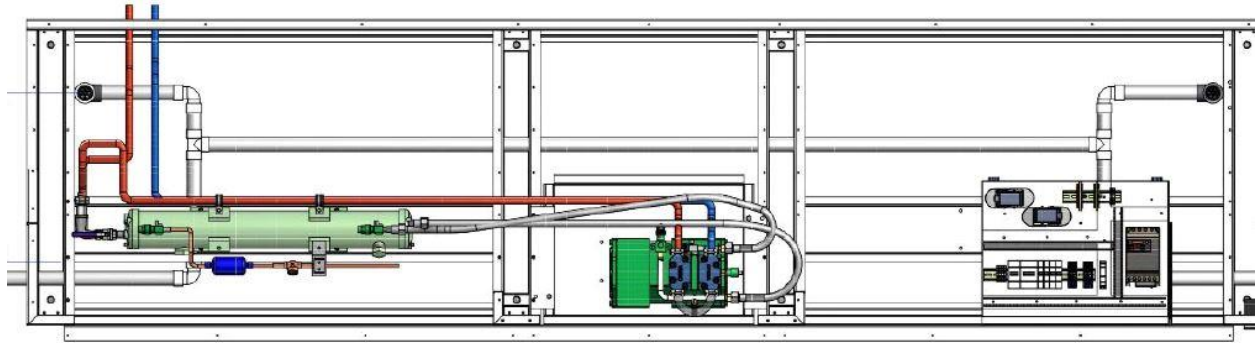
Refrigerant volume and leak rates are expensive, and have become a recent target of the EPA. **The EPA Just announced the phase out of almost all of the refrigerants utilized in most refrigeration applications. The move is a first step in the evolution to utilizing natural refrigerants, that are zero ozone depleting, and zero global warming.** There are three natural refrigerants, CO₂, Propane, and Ammonia. Many companies are working with CO₂ but the working pressures are very high, and the gas has a critical temperature and is not effective in hot climates. The work around is expensive and energy intensive.

Propane is the logical and most efficient refrigerant choice, but due to the flammability issues the EPA has very tight controls on a very limited amount that can be used per refrigerant circuit. **The only way to build a refrigeration package that can utilize Propane R-290 is to build a self-contained fluid cooled system. Our client is currently in the design stage of our first Natural Refrigerant design, utilizing R-290. The new design will comply with the refrigerant charge requirements utilizing R-290 as a refrigerant.** The refrigerated cabinet design utilizes a unique vertical evaporator design that provides the space necessary below the basin under the unit to accommodate the refrigerant package. This is significant because most other manufacturers on the planet build their units with a horizontal coil below the basin. Conventional systems are all designed for central refrigerant plants that pipe refrigerant to as many as 80 refrigerated cases in a supermarket.

This equipment was designed to be extremely reliable, durable, and easy to install without access to a skilled workforce. The individual refrigeration units reject the heat with a closed condensing water loop. A remote wet/dry fluid cooler and pump module maintains the water/glycol solution with in the desired temperature bracket. The on board controller modulated the fans, and brings on the evaporative section to boost efficiency as the ambient temperature climbs. Module comes complete with expansion tank, circulating pumps, and controls.

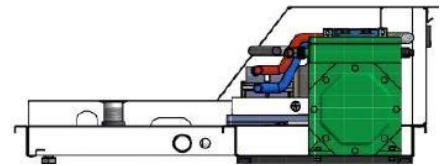
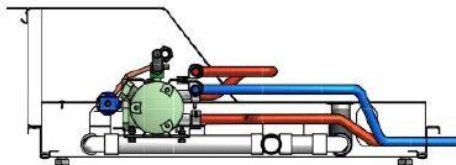


UPRIGHT CABINET 12'



SECTION A-A

SECTION B-B

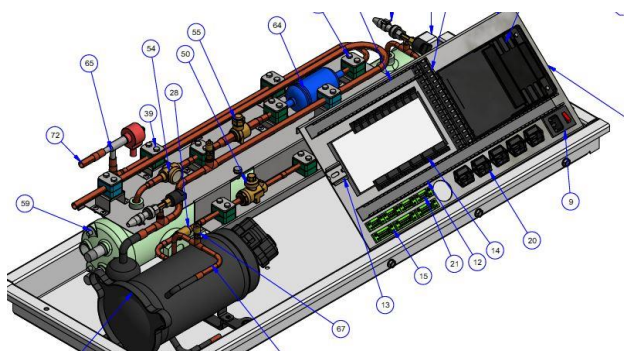


Refrigerant package designed to neatly fit in a pull out drawer for easy service access. Unit is factory charged and test run so system is ready for instant service once installed. The slide out equipment trays are designed to be easily interchanged to allow replacement refrigerant packages. This has been done to accommodate compressor options, and the future conversion to natural refrigerants. The refrigerant packages include the electronic expansion valve that can be programmed to work with any refrigerant. Two compressor options are available; our original design utilizes the Bitzer semi-hermetic compressor fitted with our custom water-cooled heads to insure reliability and enhanced valve life in low temperature applications. Isolation valves allow for quick compressor change outs without refrigerant loss. With the Bitzer package the same compressor model is used in the majority of the equipment packages.



Variable speed drive is packaged in a pull out drawer, with all relevant disconnects, relays, and controls. Communicates with all control protocols.

Rotary Compressor Module:



The Rotary compressor module combines the complete refrigerant package to include the temp controller, the variable speed, drive, TXV, relays and disconnects. This design modification makes possible the multiple refrigerant packages needed in the R-290 application. Each module is designed to be interchangeable.

The second compressor package option utilizes the compact horizontal Rotary compressor utilizing the variable speed BLDC motor. The more efficient compressor and motor design provide the optimum in operating efficiency. Our Rotary line is available in all refrigerants now in use as well as R-290 in the near future. The R-290 version will utilize multiple compressors and the multi-circuit segmented coil can be piped to adapt to either refrigerant package.

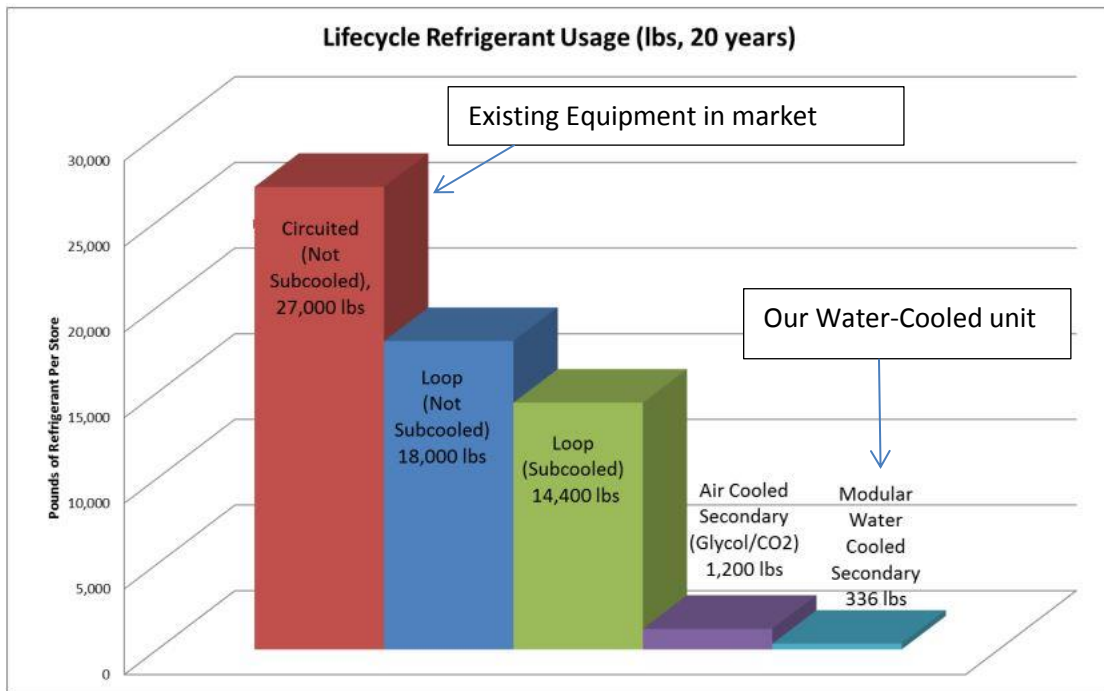
The factory is in its fifth year of production and currently producing just north of 100 refrigerated units per month, with a total capacity of 250 units per month with one shift. Refrigerant packages will be installed and test run at the factory. In the future compressor options will be installed at our central Texas assembly center to accommodate the individual refrigerant and voltages required by the customer.

Retrofit refrigeration packages will be fabricated to fit on top of existing refrigerated appliances currently serviced by a central system. These units will only be available in the Rotary compressor format and will be similar in design as the drawing above with an enclosed cabinet design.

Retrofit Refrigeration Package:



We will provide a small retrofit refrigeration package similar to this unit to provide more retrofit options for the grocery owners. We simply modify their existing refrigerated cases using their desired refrigerant. This option will be a significant player in our leasing program.



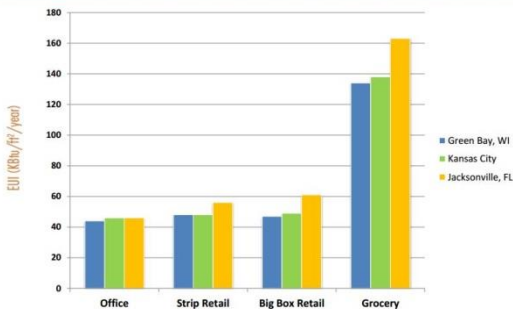
Note cost to maintain a central system with industry typical 20% annual leak rate.

Refrigerant Regulation Why Secondary?

	HFC Refrigerant Charge (lbs)	System Leak Rate*	Annual Leakage (lbs)	Lifecycle Refrigerant (lbs, 20 years)	Lifecycle Carbon (lbs, 404A)	Refrigerant Replacement Cost (\$/lb)	Lifecycle Cost (20 Years)*
Circuited (Not Subcooled)	4,500	25%	1,125	27,000	102,168,000	\$10	\$270,000
Loop (Not Subcooled)	3,000	25%	750	18,000	68,112,000	\$10	\$180,000
Loop (Subcooled)	2,400	25%	600	14,400	54,489,600	\$10	\$144,000
Air Cooled Secondary (Glycol/CO2)	600	5%	30	1,200	4,540,800	\$10	\$12,000
Modular Water Cooled Secondary	240	2%	4.8	336	1,271,424	\$10	\$3,360

*Does not include the labor for leak detection
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Annual Energy Use Intensity (EUI)



Grocery is second only to Fast Food!

Note that grocery stores use dramatically more energy than typical commercial construction. It is easy to see how an efficient refrigeration system can have dramatic impact on the profitability of a typical grocery application when you consider the narrow margins in the business.